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We now come to conſider the rivers that fall into the Eaſt Sea from the mouth of the *Awatſcha*, towards the ſouth, to the *Kurilskaya Lopatka*; and from the *Kurilskaya Lopatka* into the *Penſchinska* ſea to the *Tegbil* and the *Puſtaia* rivers. 133

There are but few rivulets that interſect the country between the mouth of the *Awatſcha* and the *Lopatka*. The ridge of mountains, which divides *Kamtſchatka*, extends to the Eaſt Sea: the declivity is ſteep and craggy; and the gulphs and bays, which are formed by theſe mountains, afford a ſafe harbour for veſſels of any burthen in the worſt weather.

The *Kurilſkaya Lopatka*, which by the natives is called *Kapoore*, is the ſouthernmoſt point of the cape of *Kamtſchatka*, and divides the eaſtern from the *Penſchinska* ſea: it takes its name from its reſemblance to a man's ſhoulder-blade. Mr. *Steller*, who has been upon the *Lopatka*, ſays, that the place is not more than 10 fathoms above the ſurface of the ſea, and for that reaſon is ſubject to great inundations, ſo that for 20 verſts from thence no-body lives, except thoſe who come there in the winter to catch foxes; and when the ice is carried thither with the beavers on it, then the *Kuriles*, who follow this ice along the ſhore, aſſemble here in great multitudes. Within three verſts from the *Lopatka* nothing grows except moſs; and there are neither rivers nor ſprings, only a few lakes and pools. The ſoil conſiſts of two layers, the lower is ſtrong, and the upper ſpongy; and its ſurface is full of hillocks, and uſeleſs. The firſt rivulet falling into the *Penſchinſka* ſea, is called the *Utatumpit*; two verſts from the *Utatumpit*, the rivulet *Tapgutpan* runs into the ſea, upon which ſtands a ſmall fort called *Kochinskoy*; and three verſts from thence is the *Pitpuy*, or *Ozernaya*, which runs out of a conſiderable lake divided from the ſea by a mountain. The *Ruſſians* call this river *Kambala*, or Flounder River, becauſe great numbers of flounders are caught in the mouth of it. 103 133 134 137 133

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The channel between the *Kurilskaya Lopatka* and this iſland is 15 verſts in breadth; over which they paſs in ſmall boats, when the weather is fair, in three hours. This paſſage requires not only fair weather, but likewiſe a flowing tide. In the time of the ebb, the waves ſpread for ſome verſts, are rapid and white, and ſo large that even in calm weather they riſe two or three fathoms high. Both the Coſſacks and *Kuriles* have a ſuperſtitious awe and veneration for theſe waves; and when they row over them, offer them a ſacrifice by throwing chips made on purpoſe, imploring a ſafe paſſage; the pilots alſo uſe conjurations the whole way.

The ſecond *Kurilskoy* iſland, *Paromuſir*, is twice as large as the firſt. It lies north-eaſt and ſouth-weſt, and is ſeparated from the firſt by a channel two verſts broad, where one veſſel may lie in time of neceſſity, but not without danger, there being no proper place for anchorage: and if a veſſel parts from her anchor, ſhe will be in very great danger; for the ſhore here being ſteep and rocky, and the channel narrow, it is next to impoſſible for her to eſcape. There was a melancholy example of this in the year 1741, when one of our veſſels was caſt away here. This iſland is alſo mountainous, and has as many lakes and rivulets as *Schumtſchu*; and on both of them, there is no other timber than *Slanetz* and *Ernick* which are uſed by the inhabitants for fuel, and they build their huts of different kinds of wood which they find thrown on the ſhore by the waves from *America* and *Japan*; among theſe are ſometimes found pieces of ranfarn-wood, of which ſeveral large one's were brought thence to me. The inhabitants of this iſland are right *Kuriles*, who came there from the iſland *Onneckoot*; but upon what account is not known. All affirm, that between the inhabitants of the two above-mentioned iſlands, and the moſt remote, commerce was formerly eſtabliſh-

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the company's land, but ſeveral doubt this; for, according to his opinion, that land ought to be the baſe of the triangle of the *Kuriſki* and the *American* iſlands; this would be probable, if the company's land ſhould be rightly laid down in the maps.

America enjoys a much better climate than the coaſt of the north-eaſt ſide of *Aſia*, although equally near the ſea, and every where full of high mountains, which are continually covered with ſnow; but they have greatly the pre-eminence when we compare their qualities with thoſe of *Aſia*. The mountains of *Aſia* being every where rocky and ragged, they loſe their compactneſs and internal native heat; for which reaſon they have no valuable metals, nor any trees or herbs, and in the vallies there grows only ſmall ſhrubby wood and hardy herbs. The *American* mountains are cloſe and their ſurface not covered with moſs, but with a fruitful earth, for which reaſon they are cloathed from the bottom to their tops with a thick and fine wood. The herbs that grow at their feet are of that kind that grow in dry places, but not in marſhes; and the ſame herbs grow in the vallies as on the very tops of the mountains, becauſe there is every where an equal warmth and moiſture. But in *Aſia* it is quite different, for the ſame herb grows twice as high in the plain as in the mountains.

In *America* at 60° the coaſt is covered with wood; but at *Kamtſchatka*, which is only 51° of latitude, the ſmall willows and poplars do not grow nearer the ſea than 20 verſts, and birch wood not nearer than 30, nor the pitch wood along the river *Kamtſchatka* nearer than 50 from its mouth: and in *Kamtſchatka*, in 62°, not one tree is to be found. In Mr. *Steller*'s opinion *America* extends from the before-mentioned latitude to 70° and farther, and is defended and covered from the weſt by the above wood; but on the coaſt of *Kamtſchatka*, eſpecially upon the *Penſchinſka* ſea, it is quite barren, being open to the violent

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137 violent north winds, which blow here frequently; and we find that places lying farther north are more fruitful, as about the *Tchukotſkoi* Noſs, where they are covered from theſe winds.

000 It is likewiſe obſerved, that the fiſh enter the rivers in *America* earlier than in *Kamtſchatka*. Great plenty of fiſh have been ſeen there on the 20th of *July*, at which time in *Kamtſchatka* they only begin to appear. There are a ſort of raſberries of a very extraordinary ſize and fine taſte; beſides honeyſuckles, cranberries, blackberries, and bilberries in great plenty.: as alſo ſeals, ſea-beavers, whales, dog-fiſh, marmotta-minor, red and black foxes which are not ſo wild as in other places, perhaps becauſe they are ſeldom hunted.

Among the known birds have been obſerved magpies, crows, ſea-gulls, water-cranes, ſwans, ducks, quails, plovers, *Greenland* pigeons, and fowls called northern ducks; and among the unknown, ten kinds diſtinguiſhable from any ſpecies of *European* fowl.

171 The natives there,[1] who are as wild as the *Koreki* and the *Tchukotskoi*, are plump, broad ſhouldered, ſtrong boned, of a middle ſize, with ſtreight and black hair which hangs looſe. Their faces are ſwarthy and flat, their noſes ſomewhat pointed but very broad, with black eyes, thick lips, ſmall beards, and ſhort necks. Their ſhirts, which come lower than the knee, are girded about their bellies with leather ſtrings; and their breeches and trowſers are made of the ſkins of ſeals dyed with alder, and are like thoſe of the *Kamtſchatdales*. To their girdles they hang iron knives in caſes, like thoſe worn by the *Ruſſian* boors. Their hats are made of graſs, as thoſe of the *Kamtſchatdales*, without tops, in the ſhapes of umbrellos, dyed with green and red colours, with falcons' feathers before, or with graſs that is combed out, which looks like the plumage that the *Americans* uſe about *Brazil*. They feed on fiſh, ſea animals, and the ſweet herb, which they prepare

1. [in America across from Kamchatka]

THE NATURAL HISTORY OF

KAMTSCHATKA.

PART II.

CHAP. I.

Of the SOIL.

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UPON the banks of the river *Kamtſchatka* is found plenty of roots and berries, which in ſome meaſure ſupply the want of corn. There is alſo wood ſufficient not only for building houſes, but even for ſhip-building; and Mr. *Steller* is of opinion, that near the head of this river, both ſummer and winter corn would grow as well as in any other places in the ſame latitude, the ſoil being deep and rich; and though ſnow falls in very great quantities, yet it thaws early enough, and the ſpring is not ſo rainy, nor have they ſuch damps, there as in many other places. Several tryals of ſummer-corn have been actually made both in the upper and lower *Oſtrog* * of *Kamtſchatka*; in which both barley and oats have ſucceeded. At the monaſtery of our Lord of *Jakutſki*, they have

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* *Oſtrog* is a little town fortified with palliſades, where the *Ruſſian* Coſſacks, and other inhabitants live.

134 241 ſeveral years paſt ſown ſeven or eight poods † of barley, which yielded a crop not only ſufficient for groats and meal for their own uſe, but even enough to ſupply their neighbours, though they are obliged to plough their land with men.

All garden ſtuff thrives not alike; the moſt ſucculent produce only leaves and ſtalks. Cabbage and lettice never grow to any head, and the peas continue in flower until late in the harveſt without yielding ſo much as pods; but garden roots which are full of juice, ſuch as turnips and radiſhes, grow very well. Theſe tryals, however, were only made upon the banks of the Great River and *Awatſcha*. Such things as require a hot ſoil, grow very well every where, but ſtill beſt upon the *Kamtſchatka*. Upon the Great River I never ſaw any turnips larger than three or four inches diameter; but upon the *Kamtſchatka*, I have ſeen them four or five times as big.

137 The graſs grows here ſo high, and is ſo full of ſap that one ſcarcely ſees any thing like it in all the empire of *Ruſſia*; near the river and lakes, and in the opening of the woods, it riſes to above the height of a man, and ſo faſt that it may ſometimes be mowed thrice in a ſummer; ſo that few places can be more proper for breeding of cattle; and although the blades are thick and high, and make but a coarſe ſort of hay, yet the cattle are large and fat, and give plenty of milk both ſummer and winter, which I attributed to the richneſs of the ſoil and the ſpring rains. The graſs continues full of juice, even to the beginning of winter, which being condenſed by the cold prevents the graſs from turning hard during that ſeaſon. As the graſs is ſo high and thick, a great deal of hay may be made upon a ſmall ſpot; and the cattle can find food in the fields all the winter. The places where 132 the graſs thus grows are never ſo much covered with ſnow as the bogs and ſwamps, and for this reaſon it is difficult to travel over them in the winter.

† A pood is a *Ruſſian* weight of 40 lb.

In

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134 preſent are no woods, but only ſhrubs, and ſtunted ſallows, and birches, were formerly covered with water, which has decreaſed by degrees here, as it has upon the north-eaſtern coaſt. Below the earth lies a bed of pure ice, extremely hard; and under that a ſoft wateriſh clay, with gravel; this continues from the ſea up to the very mountains, and will ſufficiently account for the barrenneſs of theſe parts. But, though the land is not every where fit for agriculture, yet ſome places upon the river *Kamtſchatka* (which have been already mentioned) and along the *Biſtroy* river, are ſufficient to furniſh with corn, not only the inhabitants, but alſo the neighbouring parts. It is however to be feared, that the burning of the woods, in order to clear the lands, may drive away the ſables, who have a particular averſion to ſmoke: this happened upon the river *Lena*, formerly the beſt hunting country, but now deſerted by theſe animals.

137 313 489 The ſcarcity of wood is a great inconvenience, both the *Ruſſians* and natives being obliged to fetch it twenty or thirty verſts with great trouble and loſs of time, for the neceſſary uſes of boiling their ſalt and curing their fiſh: and it is very difficult to bring it down in floats, becauſe the current is rapid and ſo ſhallow, that they can bring only two little bundles on each ſide of a ſmall fiſhing-boat; otherwiſe they would obſtruct themſelves in the management of their boat, and thereby run the riſk of being driven upon the rocks, ſand-banks, and trunks of trees, where not only their boat and wood, but frequently the people themſelves are loſt. Sometimes the ſcarcity of wood is ſupplied by ſuch as is thrown up by the ſea, which the inhabitants gather upon the ſhore; but this wood that has been ſoaked in the water, although they are at great pains to dry it, never burns clear, but ſmothers away with a continual ſmoke very hurtful to the eyes.

137 313 At the diſtance of 30 or 40 verſts from the ſea, and near the heads of the rivers, grow birch-trees, alder, and poplar; of which the people build their houſes and make their boats. But this

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this they bring down with great difficulty, uſing the method above mentioned: for which reaſon a very poor houſe will coſt here 100 rubles and more, and a ſmall fiſhing-boat five rubles. In other places, where the hills are nearer the ſhore, and the water-carriage eaſier, wood for firing and building is much cheaper. 137 313

Upon the *Biſtroy* river, which falls into the Great River below the *Bolſcheretſkoi Oſtrog*, grows the beſt wood that is in theſe parts; even the birch-trees are ſo large, that captain *Spanberg* built a ſloop with their wood, in which he made ſeveral diſtant voyages to ſea. 137

It is very remarkable, that when this veſſel was launched ſhe lay as deep in the water as a veſſel full loaded; and it was believed, that ſhe never would be fit to go to ſea, but that the ſmalleſt loading would ſink her. But, when ſhe was laden, ſhe drew very little more water, and few veſſels ſailed better or lighter, or could go nearer the wind: the reaſon of which may be, that as this wood has not ſo much roſin, it ſucked a greater quantity of water at firſt, but ſo ſoon as its parts were once filled, it then ſucked very little more.

There is great plenty of wood upon the eaſtern coaſt of *Kamtſchatka*; from the hills down to the very ſhore grow very fine birch and alder trees. Beyond the river *Jonpanoba*, and towards its head, begin the woods which continue to the *Kamtſchatka*, *Lopatka*, and along the river *Kamtſchatka* to the mouth of the river *Elouki*. Up the river, almoſt to its head, grow likewiſe pines, but not large enough for buildings. About the neck of land which joins the peninſula of *Kamtſchatka* to the continent, the wood begins again to fail.

The changes of the weather and air are commonly in the following order: harveſt and winter make up more than one half of the year; and the ſpring and ſummer cannot be reckoned 132

above

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that amber is gathered here, near the *Penſchinſka* ſea, upon the river *Tegbil*, and farther north. 135

CHAP. V.

Of TREES *and* PLANTS.

THE moſt uſeful wood is the larch *, and the white poplar †, which ſerves for building their houſes and forts; and they are fit, not only for ſuch boats as the inhabitants uſe, but even for the building of ſhips. The larch-tree, indeed, only grows upon the river *Kamtſchatka*, and ſuch other rivers as fall into it: in other places they make uſe of the white poplar. The pine-tree ‖ and the black poplar ‡ are no where to be found upon the *Kamtſchatka*; and the pitch-tree ** only in one place, and there in ſmall quantities. Although there be many birch-trees ††, yet they make little uſe of them, unleſs in their ſledges, having none near their houſes but what are crooked and uſeleſs; and it is very troubleſome to bring the better ſort from the diſtance at which it grows. 137 313

They make great uſe of the birch bark, which they ſtrip from the trees while yet green; and cutting it in ſmall pieces, like vermicelli, eat it with dried caviar. In the winter, whenever you enter any of their villages, you find the women employed in hacking this green bark with their bone or ſtone axes. They alſo ferment this bark with the juice or ſap of the birch, which makes an agreeable drink. The birches of 314 222 252 273

* Larix. ‖ Pinus. ** Picea.
† Populus alba. ‡ Populus nigra. †† Betula.

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the birches of

Kamtſchatka are much fuller of knots and hard excreſcences than thoſe of *Europe*; but of theſe knots they make very uſeful plates, ſpoons, and cups. Mr. *Steller* obſerved, that the white poplar near the ſea was quite porous and light, which he attributed to the ſalt water; that the aſhes of this wood, laid out in the open air, turned into a ſtony ſubſtance heavy and hard, which, the longer it lies, the harder and heavier it grows. This ſtone, when broken, ſhews ſome ſpecks of iron in its ſubſtance. Sallows * and alders † are the common fire-wood in *Kamtſchatka*. The bark of the ſallow is uſed for food, and that of the alder in dying their leather; as ſhall be related more at large in another place. They have the tree tcheremough ‖ and the hawthorn ‡ of two ſpecies, one yielding a red, and the other a black fruit; of theſe they lay up a great quantity againſt winter: they have likewiſe the ſervice-tree ** in great plenty, whoſe fruit is eſteemed amongſt their moſt delicate confections.

Their principal nouriſhment is from the nuts of the ſlantza, which grows every where, both in hills and dales. This ſhrub, or tree, is truly of the cedar kind, only it is much leſs; and inſtead of growing ſtraight, it creeps along the ground. Its cones and nuts are not half ſo large as thoſe of the cedar: the *Kamtſchadales* eat them with the ſhells. Theſe, as well as the tcheremough and the hawthorn berries, are very aſtringent, eſpecially if eaten in any quantity. The greateſt virtue of theſe nuts is, that they are a good remedy againſt the ſcurvy, as all our ſeamen can witneſs: for in the moſt ſevere ſcurvy this is, as one may ſay, almoſt their only medicine; and from the tops of the ſlantza and cedar was their common drink made, ſometimes fermented, at other times drunk warm like tea; and orders were given by

* Salices.
† Alni.
‖ Padus foliis annuis. LINN.
‡ Oxyanthus fructu rubro et nigro.
** Sorbus.

the

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the commanding officer that the kettle with ſlantza and cedar tops ſhould never be taken from the fire. Red currants, raſberries, and kneſhnitza are very rare there, or grow at ſuch a diſtance from their houſes that no one cares to go in ſearch of them. The blackberries of the gimoloſt * are of great uſe, being of an agreeable taſte, ſomething like new-fermented beer. The bark of this ſhrub is uſeful in diſtilling brandy, giving ſtrength and ſharpneſs to the ſpirit.

The juniper † grows every where; but they do not uſe the berries, as they lay up great ſtore of moroſky ‖, pianitza ‡, bruſhnitza **, klioukva ††, and vodinitza ‖‖: and when they have great plenty of theſe berries they not only uſe them as confects, but diſtil brandy from them, except from klioukva and vodinitza, which yield no ſpirit. Mr. *Steller* writes, that the vodinitza is no bad remedy for the ſcurvy; and the inhabitants dye any old cloaths with it that have loſt their colour, to which it gives a cherry-colour. Some boil it up with train-oil and alum, and dye the beaver and coarſe ſables with it well enough to deceive the unwary or ignorant. In many places they content themſelves with roots and herbs, and make them ſupply not only their want of bread, but of fiſh alſo. The principal of theſe is the ſaranne, which ſerves inſtead of groats. It belongs to the claſs of the lillies ‡‡; but as this ſort is never ſeen any where but in *Ochotſkoy* and *Kamtſchatka*, I ſhall give a deſcription of it. It grows about half a foot high; has a ſtalk near the thickneſs of a ſwan's quill, red below and green above. Its leaves grow in two

* Lonicera pedunculis biflorio, floribus infundibuli formis, bacca ſolitaria, oblonga, anguloſa. GMEL. flor. Sib.

† Juniperus.

‖ Chamemorus RAII Syn.

‡ Vaccinium Spec. 2. LINN. Bilberry.

** Vaccinium Bilberry Spec. 3. LINN.

†† Vaccinium Red Crowberry Spec. 4.

‖‖ Empetrum.

‡‡ Lillium flore atro rubente.

137 rows upon the ſtalk; the lower row having three leaves, and the upper four, placed croſsways: the form of the leaves is oval. Sometimes above the ſecond row one leaf grows juſt under the flower. Upon the uppermoſt part of the ſtalk grows one dark cherry-coloured flower, rarely two, ſomething leſs than that of the common lilly; and this is divided into ſix equal parts. The pointal in the center of the flower is triangular, at the top flat, and in three different cells contains flat reddiſh ſeeds. Round the pointal are ſix white ſtamina with yellow heads. Its root, which is properly the ſaranne, is about the bigneſs of a root of garlick, made up of many little cloves, whence it acquires a round form. It bloſſoms in *June*, at which time one can ſee no other flower over the whole fields.

222 252 262 435 The natives of *Kamtſchatka*, and the wives of the *Ruſſian* Coſſacks, dig up the roots in the harveſt, or take them out of the neſts of the field-m[illegible]y† them in the ſun, and ſell them for five or ſix rubles the pood. The ſaranne half boiled, and beat up with brambleberries, cranberries, or ſuch other of this kind, makes one of the moſt agreeable confections, being of a ſharp ſweetneſs; and if one had enough for every day's uſe, the want of bread would be tolerably 137 well ſupplied. Mr. *Steller* reckons five ſpecies of this plant: 1ſt. the kimtchiga, which grows near *Tegbil* and *Hariouſkovoy*, in appearance like a large ſugar-pea, and if boiled taſtes much the ſame; but neither he nor I ever ſaw this plant in bloſſom: 2dly, the round ſaranne, which I have deſcribed above: 3dly, ovſenka *, which grows every where in *Siberia*, being roots of red lillies, whoſe flowers are all turned up in curls; the bulb is compoſed of an infinite number of ſmall cloves: 4thly, titichpa,

* Lilium radice tunicata, foliis ſparſis, floribus reflexis, corollis revolutis. GMEL. flor. Sib.

† Defect in Original. Sentence probably reads: "field-mice to dry?

which

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which grows upon the Great River; but neither he nor I ever saw this in the flower: 5thly, matiſta ſladka trava *, or the ſweet plant, is as uſeful in their oeconomy as the ſaranne; for the *Kamtſchadales* uſe this not only as a confection in tarts and broths, but in all their ſuperſtitious ceremonies this is abſolutely neceſſary. The *Ruſſians* were no ſooner ſettled there, than they found that brandy was to be diſtilled from it; and at preſent this is the only brandy that is publickly ſold. The root of this herb is without yellowiſh, within, white; and of a bitter, ſpicy taſte. The ſtem is fleſhy, of three or four joints, and about a man's height. Its flower is a reddiſh green, with ſhort white hairs, longeſt near the root. The leaves upon the ſtem neareſt the root are five or ſix, and ſometimes even ten: they grow upon thick, round, fleſhy, green, rough ſtalks, marked with little red ſpots. Upon the main ſtem, at every joint, ariſes one ſuch leaf, but without a ſtalk. The flowers are ſmall and white, like fennel, or other herbs of that ſort; and conſiſt of five leaves, of which the innermoſt are largeſt, and the outward ſmalleſt. It has two ovaria upon every flower, upon ſhort ſmall necks; and round them are five white ſtamina with green points, which riſe higher than the flower. The flowers, taken all together, reſemble a plate; while the ſtalks which ſupport the umbella are longeſt without, and in the middle ſhorteſt: ſtalks ariſe from every joint, upon which are flowers.

This plant abounds every where in *Kamtſchatka*, and the inhabitants gather and prepare it in this manner: they cut off the ſtalks of the leaves which grow neareſt the root, and with a ſhell

* Sphondylium foliolis pinnatifidis. Linn. Cliff.

ſcrape

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222 252 ſcrape off the ſkin; and then bind up ten ſtalks together. When it begins to ſmell a little, then they put it in a bag to ſweeten; where it yields a ſweet duſt, which perhaps ſweats out from the pith of the plant. This herb-ſugar, as they call it, has ſomething the taſte of liquorice, and is not very pleaſant. A pood of the plant does not afford above a quarter of a pound of this duſt.

137 222 The women, when they gather this,[1] muſt wear gloves; for the juice is ſo ſharp or cauſtic, than whenever it falls upon the fleſh it raiſes ſwellings and bliſters. For this reaſon, when in the ſpring the *Ruſſians* eat it freſh, they only bite it with their teeth, taking care not to touch it with their lips. I have ſeen inſtances of ſome that were unacquainted with this, who raſhly chewed it as they would do any other herb; upon which, not only their lips, but their chin, noſe, and cheeks, and alſo wherever the juice of this plant had touched, was immediately ſwelled up and full of bliſters; and although theſe burſt, yet the ſwelling continued for a whole week.

273 556 The manner of diſtilling ſpirits from it is as follows:---They lay ſeveral bundles of this plant in a ſmall veſſel, upon which they pour hot water; and to make it ferment, they put in ſome berries of honey-ſuckle or cranberries, and binding the veſſel cloſe up ſet it in a warm place, where they leave it until the liquor ceaſes to make a noiſe; for during the time of fermentation, it cracks and bounces ſo much as to make the veſſel ſhake. In the ſame manner they prepare more wort in a large veſſel, and add to this, which now generally ferments in 24 hours, as above. They throw both the fermented herbs and liquor into the kettle, and cover it cloſe with a wooden cover; and inſtead of a pipe they take the barrel of a gun. The firſt running is as ſtrong as brandy; which, if they diſtil a ſecond time, produces a ſpirit ſo ſtrong that it conſumes even iron. But it is

1. [the sweet herb, sphondylium foliolis pinnatifidis Linn. Cliff.]

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is only the richer ſort of people that uſe this brandy; and what they ſell is only the firſt running, which makes a very good dram.

Two pood of herbs[1] generally render one vedro * of the firſt running, and the pood coſts four rubles or more. The herbs that remain in the ſtill after drawing off all the ſpirit, are made uſe of as a yeſt, inſtead of berries, to ferment other infuſions or wort; and what they cannot uſe thus the cattle eat very greedily, and it fattens them much. It is remarkable that brandy diſtilled from the plants from which the ſkin has not been clean ſcraped, it cauſes melancholy and perturbation of mind. Mr *Steller* made the following remarks upon this brandy: 1ſt, that it is very piercing, and contains a good deal of a ſharp acid, which coagulates the blood and makes it black: 2dly, that a ſmall quantity of it makes people drunk and quite ſenſeleſs, and cauſes their faces to turn black: 3dly, that if a perſon drinks a few drams of it, he is plagued the whole night with diſagreeable dreams, and next day is uneaſy and diſturbed as if terrified with the apprehenſion of the greateſt misfortune: and, what is very extraordinary, he has ſeen ſome people the day after they have been drunk with this ſpirit, from one draught of cold water, become again ſo drunk that they could not ſtand upon their feet. They wet their hair with the juice, which they ſqueeze out of this herb in the ſpring, as a preſervative againſt lice, and find it to be their only relief. Many of the *Kamtſchadales*, who deſire to have children, will not eat this herb, green or dry, imagining that it impairs the generative faculties.

The herb kipri †, which grows in all *Europe* and *Aſia*, has the third place in the food of the *Kamtſchadales*. They

* Vedro is a *Ruſſian* liquid meaſure containing 25 pints.

† Epilobium. Linn. Succ. Spec. 1. French willows.

1. [the sweet herb, sphondylium foliis pinnatifidis Linn. Cliff.

boil

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boil it with their fiſh, and uſe the leaves as tea; but the greateſt uſe is made of its pith, which, after having ſplit the ſtalks, they ſcrape out with ſhells, and, tied up in bundles, dry it in the ſun. It is then very pleaſant, and in taſte reſembles dried *Perſian* cucumbers. The *Kamtſchadales* uſe it in ſeveral diſhes, and ſerve it up green as a deſert. The kipri boiled gives a thick ſweet wort, that makes the beſt quaſſe * imaginable: it alſo affords them a very ſtrong vinegar, if to ſix pounds of the kipri they add a pound of the ſweet herb of ſphondilium, and ferment it in the uſual way: they get a great deal more brandy, when they uſe the infuſion of the kipri, inſtead of water, to prepare the ſweet herb for diſtillation.

They cure the navels of their children with this herb, chewing it, and laying it upon the part. They grind the roots and ſtalks, and uſe them inſtead of green tea, to which the flavour has ſome reſemblance. The ſame uſe the *Kuriles* make of another ſhrub †, which has flowers like the ſtrawberry, only yellow, and produces no berries. This is called *Kurilſkoy* tea, and has great virtue in fluxes and gripes.

The wild garlick ‖ is not only uſeful in the kitchen, but alſo in medicine. Both the *Ruſſians* and *Kamtſchadales* gather great quantities, which they cut and dry in the ſun for their winter proviſion; at which time boiling it in water they ferment it a little, and uſe it as an herb ſoup, which they call *ſhami*. They eſteem the wild garlick ſo efficacious a remedy againſt the ſcurvy, that they think themſelves in no danger ſo ſoon as it begins to

* Quaſſe is a *Ruſſian* drink made of rye-malt, and flower, and very little fermented. Sometimes they add mint to it, and it makes no diſagreeable drink.

† Potentilla caule fruticoſa. LINN. Cliff.

‖ Allium foliis radicalibus petiolatis floribus umbellatis. GMEL. flor. Sib. tom. 1. p. 49.

ſhew

l: Krasheninnikov N-5 (1736-40) 1764 Kamchadal

ſhew itſelf under the ſnow: and I have heard an extraordinary account of its virtues from the Coſſacks that were employed with captain *Spanberg* in building the ſloop Gabriel: they were ſo ill with the ſcurvy, that ſcarce any were able to work, or even to walk, ſo long as the ground was covered with ſnow; but as ſoon as the high lands began to appear green, and the wild garlick to ſprout out, the Coſſacks fed upon it greedily. Upon their firſt eating it, they were covered over with ſcabs in ſuch a manner, that the captain believed they were all infected with the venereal diſeaſe. In about a fortnight, theſe ſcabs fell off, and they were perfectly recovered of the ſcurvy. 757

We muſt reckon amongſt the food of the *Kamtſchadales* the ſhelmina *, and the morkovai †, which is the ſtalk of a plant that is hollow and juicy, ſuch as the angelica. The ſhelmina is a ſpecies of the ulmaria. Its root is blackiſh without, and white within: it ſends out from one root two or three ſtalks about a man's height; which, near the root, are about a finger thick, but above, ſomewhat thinner. The leaves ſhoot out from long branches which grow all over the ſtalk. Their upper part is green and ſmooth; and their lower rough, with high reddiſh veins. Where the branch ſprings from the root there are two leaves like thoſe above deſcribed, but ſomewhat leſs. The ſtalk is triangular, reddiſh, hard, and rough. At the top of the plant is a flower reſembling that of the ſervice-tree. It has four oval piſtils, flattened in the ſides, with downy edges; in each of which are contained two longiſh ſeeds. They are ſurrounded by ten white ſtamina, riſing above the flower; the anthera being likewiſe white. It flowers about the middle of *July*, and the ſeeds are ripe about the middle of *Auguſt*. The root, ſtalks, and 137 262

* Ulmaria fructibus hiſpidis. STELLER. † Chærophyllum ſeminibus levibus nitidis, petiolis ramiferis ſimplicibus. LINN. Cliff. p. 101.

1: Krasheninnikov N-5 (1736-40) 1764 Kamchadal

137 leaves of this plant are very aſtringent: both the *Ruſſians* and
252 *Kamtſchadales* eat it in the ſpring. They preſerve the root[1] for
262 winter, which they ſtamp and boil for a gruel. It has ſome reſemblance in taſte to the Piſtacho nut.

The morkovai pouſhki, or carrot bunches, are ſo called becauſe they are like carrots in their leaf as well as in taſte. They likewiſe eat this green in the ſpring, but they oftener ſour it like ſour crout, or make a liquor with it.

137 The kotkonia * grows upon the banks of the rivers of *Kamtſchatka* in great plenty. Its root is about the thickneſs of one's finger, bitter and aſtringent, black without, and white within. Sometimes five, but always more than two ſtalks ariſe from this root, about ten inches high, of the thickneſs of a gooſe-quill, and of a yellowiſh-green colour. At the top are three oval leaves ſpread like a ſtar, from the middle of which riſes a ſtalk half an inch high, which ſupports the flower. The cup of the flower conſiſts of three oblong green leaves, and the flower itſelf of as many white ones. In the middle of the flower is the piſtil, of ſix ſides, a yellow colour, with a red top: it contains three cells, and is ſurrounded with ſix equal yellow-coloured ſtamina; the anthera is alſo yellow. When the piſtil is ripe it is as big as a walnut, is ſoft, fleſhy, and of an agreeable taſte, like a pleaſant apple. It flowers about
262 the middle of *May*. The *Kamtſchadales* eat the root of this plant both freſh and dried, with caviar; but the fruit muſt be eaten as ſoon as gathered, for it is ſo delicate that it ſpoils if it be kept one night.

137 The ikoume ‡, or biſtort, grows in plenty both on the hills and
262 in the vallies. The *Kamtſchadales* eat it freſh or dried, and

* Tradeſcantia fructu molli eduli.

‡ Biſtorta foliis ovatis oblongis acuminatis. Linn. Cliff.

1. [Shelmina, Ulmaria fructibus hispidis. pounded Steller]

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pounded with caviar. It is far from being ſo aſtringent as that in *Europe*, is juicy, and taſtes like a nut. 137 262

Utchichlcy † is a plant that has leaves like hemp, but flowers like the ragwort. When the leaves are dried, and boiled with fiſh, they make the broth taſte as if the fleſh of the wild goat was boiled in it.

The root called here mitoui, and at *Jakutſki* ſardan, they fry in the fat of fiſh, or ſeals, and eſteem it a delicate diſh.

Theſe are the principal plants which they make uſe of in their kitchens; however there is a great number of others, and alſo of plants thrown out by the ſea, which the *Kamtſchadales* eat both freſh and dry in the winter: for, as Mr. *Steller* obſerves, they refuſe nothing, but eat every thing they can get down, even the drieſt plants and naſtieſt rotten muſhroons, although one would imagine the conſequence dangerous, as indeed it ſometimes happens. However, he tells us the natives have obtained ſuch a knowledge of plants, and of their uſe both in food and medicine, that he is ſurpriſed; and that one ſhall not find ſo much knowledge of this ſort among any barbarous nation, nor even, perhaps, amongſt the moſt civilized. They give a name to every one of their plants, and know all their properties, and the different degrees of virtue which they derive from the various ſoils and expoſitions in which they grow; and ſo accurate are they in theſe diſtinctions, and alſo in the proper time of gathering the ſeveral fruits and other produce, that it is truly wonderful. Hence the *Kamtſchadales* have this advantage above other people, that they can find food and medicine every where; and, by their knowledge and experience, are in little danger from the noxious plants. 262 824

† Jacobea foliis cannabis. STELLER.

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137 278 Amongſt the medicinal plants we muſt mention the following: 1ſt, Kailoun, a plant which grows in all the ſwamps near the rivers. The inhabitants uſe this as a cataplaſm in all boils to make them ſuppurate; and taken in decoctions, they imagine it produces ſweat, and drives away every infectious humour. 2dly, The tchaban *, which grows in plenty through all *Kamtſchatka*, they uſe in decoctions for all pains and ſwellings of the legs. 3dly, Katunatch †, or wild roſemary, is not ſo ſtrong as in other parts. The inhabitants have thought it beneficial in the venereal diſeaſe, but in this are deceived. 4thly, The ſea oak ‖ is thrown out by the waves; and being boiled with the ſweet herb, a decoction of it is given in fluxes. 5thly, The ſea raſberry is given to women in labour, to promote the birth. 6thly, There is yet another ſea plant, called yachanga ‡, which the ſea throws out near to the *Kuriliſkaya Lopatka*, reſembling the whale's beard. This the inhabitants uſe in cholic pains, infuſing it in cold water. 7thly, The omeg **, or water hemlock, grows upon all the rivers, and almoſt all the ſhore of 757 *Kamtſchatka*. This plant is made uſe of againſt pains in the back in the following manner:—They put the patient into a hut made exceedingly warm; and when he begins to ſweat profuſely, they rub his back with the cicuta, being careful not to touch the loins, for, what is very extraordinary, that would occaſion ſudden death: however from this practice they 137 generally obtain great relief. 8thly, The zgate †† muſt not 278 be omitted, whoſe dreadful qualities are but too well known 411 in all this part of the world. They anoint the points of their darts and arrows with the juice which is ſqueezed from the

* Dryas. LINN.
† Andromeda foliis ovatis venoſis.
‖ Quercus marina. CLUS. et LOB.
‡ Species fuci.
** Cicuta aquatica.
†† Anemonoides et ranunculus.

root

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root of this plant, and the wounds which they give are incurable unleſs the poiſon be ſucked out. This is certainly the only method, and, if this be neglected, the wound immediately turns blue and ſwells, and in two days the patient dies. The very largeſt whales when they have received a ſlight wound from ſuch a poiſoned weapon, cannot bear the ſea for any conſiderable time; but throwing themſelves upon the ſhore, expire moſt miſerably, with terrible groans and bellowing.

The following are very ſerviceable for cloathing, and other houſehold purpoſes.

There grows upon the ſea-ſhore a whitiſh high plant, reſembling wheat. I have ſeen it at *Strelinimuiſe*, the palace below *St. Peterſbourg*, upon ſandy ground. Of this they make mats, which ſerve them as coverings and curtains; the beſt of theſe are made of different colours, with the beards of the whales ſplit very ſmall and dyed. They alſo make clokes of it, like the old *Ruſſian* milled clokes, ſmooth within, and rough without, which makes the rain run more eaſily off them. The prettieſt of this kind of work is their little bags and baſkets, in which the women keep their trinkets. Theſe are ſo neat, that one would take them to be made of ſplit canes; and they are ornamented with the hair of whales' beards and horſe-hair, dyed of different colours. When this plant is green they make large bags of it to contain their fiſh or different herbs and roots, which they provide againſt the winter: beſides it ſerves alſo to thatch their houſes or huts. They mow it with a ſcythe, made out of the ſhoulder-blade of a whale; which they whet ſo well by grinding it upon a ſtone, that they bring it to a very good edge.

In the marſhes there is found a plant reſembling the cyperoides. This they dreſs with a double-toothed comb of bone, and uſe it to wrap their children in inſtead of ſhirts or ſwaddling cloaths, to keep them clean and ſweet. They alſo roll

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A LIST *of ſome* PLANTS, BEASTS, FISHES, *and* BIRDS; *with their Names in the* Engliſh, Ruſſian, Kamtſchatka, Koratſki, *and* Kurilſki *Languages.*

PLANTS.

Engliſh	*Ruſſian*	*Kamtſchatka*	*Koratſki*	*Kurilſki*
The birch tree	Berefnick	Hehy	Lagana	
Poplar	Topſtocka	Thilpiai	Yakal	
Willow	Vetalnicka	Liamtche	Tekila	
Alder	Olcheſnika	Sikite	Nikilieu	Aſa
Service tree	Rebenika	Kaihine	Eloene	Koruuoni
Juniper	Meſhevelnika	Kahaine	Valvakitche	Pakarpáirumamai
Cherry laurel	Tcholemaſnika	Kalhame	Eloene	
Dog brier	Shipovnika	Kavaſha	Pitctakachatche	Kopokane
Honeyſuckle	Shimſtede	Luſhinika	Nitchivoy	Enamettam
Barberries	Boiariſhnika	Horatsuune	Pitkitche	
Brambleberries	Morafhka	Shiie	Etiette	Apoumenipe
Wortleberries	Golubitſa	Ningule	Liagule	Enumucuta
Cranberries	Kliukva	Tchikume	Emelkevina	Afitte
Bulberries	Briuſnitou	Tchahauhe	Tiunaane	Nipoptipe

BEASTS.

Sea calves	Tiulenne	Kalha	Memele	Retaſtore
Sea beaver	Bobri	Kaiku	Kalaga	Rahku
Sea cat	Kotti	Tatlatche	Tatatche	Ounepe
A fox	Lifotſa	Tchaſhiai	Yaivne	Kimutpe
Sables	Cobali	Kembime	Kitighime	Na
Ermines	Gornoſtai	Doitchitche	Imahuhaka	Taanerume
A wolf	Volka	Kitaia	Eglinguue	Orgia
Bear	Medved	Kaſha	Kainga	
Glutton	Raſſamak	Timmi	Haeppi	These beaſts are not known in the Kurilſki iſlands
Marmotta	Evraſhka	Ciredtche	Gilnak	
Elk	Oleni	Eluahappe	Lugaki	
Stone ram	Kammenoi baranu	Guadinadatche	Kitipe	

FISHES.

A large kind of ſalmon	Tchavitche	Tchovnitche	Ewtche	Tchivirs
Red fiſh	Kraſhnoiriba	Kchiviſhe	Niovoai	Siitchiae
The humpback	Gorbuſha	Koanautchi	Kalal	Siakipa
Turbot	Kambala	Sigifigh	Alpa	Tantaka
Lampreys	Minoghi	Kanaganſhe		
Smelts	Korouchi	Innahu	Unknown	Unknown
Herring	Seldi	Neriner		
Skate	Skata	Kopaſhu	Kammiahacke	Kapaſhu
Cod fiſh	Treſka	Battai	Unknown	Unknown
Whales	Kili	Dai	Junghi	Rika

BIRDS.

Great ſea cormorant	Bolaſhoi tchaika	Atuma	Attume	Pongapiphe
Swan	Lebed	Matame	Kamtchan	
Geeſe	Gouſſed	Kſode	Gecleaine	Kuntape
A drake	Celeſna	Baine	Geſtchogatche	Bakarikn
Stone ducks	Kammenia utki	Nikingike	Unknown	Vaiout
Widgeons	Gargari, Aſhoui	Yovaiva		Ceſſe
Eagles	Orli	Selche	Tilmiti	Surgoar
Hawkes	Saholi	Shiſhi	Tilmitil	
Partridges	Kuropatki	Euibtchitche	Euette	Niepoe
Crows	Voronoi	Kaka	Tchoutchavza-la yelle	Paſkere
Magpies	Saroki	Kakitchertche	Unkitigin	Kakuk
Ravens	Voronitcherni	Hagulhak	Nimetta yelle	
Swallows	Laſtotchki	Kaiukutche	Kavalingek	Kuahan
Larks	Javoronki	Tchelaalai	Geatcheiere	Rikintchire
Cuckows	Kokaſhke	Koakoutchitche	Kaikuke	Kahkek
Snipes	Kuliki	Soakulutche	Tcheias	Etchikumama

Of

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361 different buildings; the entrance into the fort is by a ſmall
563 gate on the weſt ſide. Beyond the fort was a chapel, now con-
R verted into a church conſecrated to St. Nicholas, with a belfry
177 upon pillars. There are about 30 houſes of inhabitants, one pub-
.71 lick houſe for ſelling brandy, and a diſtillery. There are about
45 Coſſacks; and though their children pay the common head tax, yet 14 of them do duty with the other Coſſacks. This fort is the weakeſt of all; but they ſeem to be very ſecure, as the neighbouring *Kamtſchadales* were almoſt the firſt that ſubmitted,
361 and have always been faithful, and lived peaceably. With re-
R gard to its ſituation it has great advantages: firſt, all veſſels that
177 come by ſea can come into the Great river, from which they
.71 receive their goods at the firſt hand: ſecondly, they receive great profits from the perſons that arrive there, whom they furniſh with lodging and board: thirdly, they are great gainers by the tranſporting goods from thence to the other forts: fourthly, they have a better opportunity than the others of getting *Kamtſchatka* beavers, which is now reckoned a principal commodity: fifthly,
132 in the ſummer they have the greateſt plenty of fiſh, which they
136 catch with little trouble and expence; for this reaſon the commander in chief of all the *Kamtſchatka* forts generally lives here, ſending out deputies to the others. The only diſadvantage they have is, that in the ſummer, during the time of fiſhing, they are very ſubject to rainy weather, which ſpoils a great many of their
137 fiſh, and thereby reduces them to great difficulties for food. If this river was furniſhed with wood ſufficient the difficulty might be removed, as inſtead of drying them in the ſun they might ſmoke them, as the inhabitants of *Ochotſka* do. But this is impracticable becauſe of the diſtance of the wood, and the trouble of bringing it down. It is ſo ſcarce here, that what they abſolutely muſt have for the boiling of ſalt and train oil, they are forced to provide at the diſtance of three days' journey, and can bring no more than will ſerve to make 40 pounds of ſalt.

The

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The upper fort of *Kamtſchatka* was the firſt built, and for ſome years reckoned the principal, as the chief commiſſary lived there. It ſtands upon the left bank of the *Kamtſchatka*, near the mouth of the little *Kaly*, about 69 verſts from the riſe of the *Kamtſchatka*, 242 verſts in the ſtraight road from the *Bolſcheretſkoi* fort. It is 17 fathom ſquare; the gate fronts the river, and over it is a warehouſe. Within the fort is the office for receiving the taxes, a room for keeping the hoſtages, and two magazines. Without the fort is a church conſecrated to St. *Nicholas*, the commiſſary's houſe, a publick houſe, diſtillery, and 22 private houſes for the accommodation of the garriſon, which conſiſts of 56 Coſſacks. This fort has the advantage of the *Bolſcheretſkoi*, the weather being here generally pretty good, and the wood, though only poplar, can be procured with little trouble, and is ſo large and ſubſtantial that it is very uſeful for building: beſides the ſoil is better here, being much fitter for agriculture than any of the other parts. The fiſhery is indeed very poor, being at ſuch a diſtance from the ſea. The fiſh come up in ſmall numbers, and ſo very late, that the inhabitants of the *Niſhnaſhaltalſki* fort make all their winter proviſion before they begin to fiſh in the upper fort; ſo that almoſt every ſpring there is a ſcarcity of proviſions. Their ſalt and train oil they either buy from the inhabitants of the lower fort, or, notwithſtanding the great diſtance, they go themſelves and boil it at the mouth of the river *Kamtſchatka*, which is 400 verſts from the upper fort. Formerly they uſed to have great plenty of ſea beavers in the Beaver Sea, but at preſent very few of them are caught; ſo that the inhabitants have their only hope of ſupport from agriculture, to which if they apply themſelves, they may expect more profit than from any commerce with the natives; and, if they neglect it, it will be impoſſible for them to live there.

The lower *Kamtſchatka* fort is 397 verſts diſtant from the upper fort, and ſtands upon the ſame ſide of the river, about 30 verſts from

from its mouth. The fort is a parallelogram made with paliſades; its breadth is 40, and its length 42 fathoms. In the fort is a church dedicated to the Virgin *Mary*, the office and magazine for the taxes, ſtores, and the commiſſary's houſe. Theſe are all built of larch wood, and much neater than in any other fort. Without the fort are 39 private houſes, beſides the publick houſe and diſtillery. The male inhabitants are 92, of all ranks.

This fort, with regard to the neceſſaries of life, may be reckoned preferable to any other. Here the inhabitants catch plenty of fiſh, which they dry and ſalt in ſufficient quantities for proviſion through the whole year: here they have wood enough, not only for building their houſes, but alſo for building ſhips, to which the river ſerves as an harbour; and by its proximity to the ſea they boil ſo much train oil and ſalt as to ſupply the other forts. Game is here ſo plenty, that the pooreſt Coſſack ſeldom dines without a ſwan, gooſe, or duck; and through the whole winter, in the ſprings, they catch freſh fiſh. Wild berries of all ſorts are here in great abundance, which the inhabitants lay up in ſtore for the winter, and which next to fiſh is the greateſt part of their ſuſtenance; and the beſt *Kamtſchatka* ſables are caught near the river *Tegbil*. All the goods which they get from the *Koreki*, ſuch as deer-ſkins, and even the fleſh of the deer itſelf, are cheaper here than any where elſe: beſides, this is a moſt fruitful ſoil, where they may cultivate corn of all ſorts. The only inconvenience that they have is, that both *Ruſſian* and *Chineſe* goods are dearer here than at any other fort, which is owing to their land-carriage from the *Bolſcheretſkoi Oſtrog* hither, which coſts four rubles a pood.

The fourth fort was built upon the bay of *Awatſcha*, in the pear 1740; and inhabitants were brought hither from the upper and lower *Kamtſchatka* forts. The houſes are tolerably good, particularly thoſe which were built for the people of the *Kamtſchatka*

7:Lesseps T-3 (1787-88)1790 Kamchadal

000 ber, and the 16 was ſpent in the hurry and buſtle which the laſt preparations generally occaſion. The reſt of our route, as far as Bolcheretſk, was to be upon the Bolchaia-reka. Ten ſmall boats, which properly ſpeaking, appeared to be merely trees ſcooped out in the ſhape of canoes, two and two laſhed together, ſerved as five floats for the conveyance of ourſelves and part of our effects. We were obliged to leave the greater part at Natchikin, on account of the impoſſibility of loading theſe floats with the whole, and there were no means of increaſing them. We had already collected all the canoes that were in the village, and even ſome of our ten had been brought from the oſtrog of Apatchin, to which we were going.

133 137 The 17, at break of day, we embarked upon theſe floats. Four Kamtſchadales, by means of long poles, conducted our rafts.

But

7:Lesseps T-3 (1787-88)1790 Kamchadal

133 But they were frequently obliged to place
137 themſelves in the water, in order to haul them along; the depth of the river in ſome places being no more than one or two feet,
000 and in others leſs than ſix inches. Preſently one of our floats received an injury; it was preciſely that which was freighted with our baggage, and we were obliged to unlade every thing upon the bank, in order to refit it. We waited not, but preferred leaving it behind, in order to proceed on our route. At noon another accident, much more deplorable for men whoſe appetites began to be clamorous, occaſioned us a further delay. The float in which our cookery was embarked, ſunk all at once before our eyes. It will be ſuppoſed we did not ſee the loſs which threatened us, with indifferenc; we were eager to ſave the wreck of our proviſions; and for fear of a greater misfortune, we wiſely reſolved to dine before we proceeded any farther. Our dinner

7:Lesseps T-3 (1787-88)1790 Kamchadal

000 ner tended gradually to diſpel our fears, and gave us courage to diſcharge the water which over-loaded our boats, and to reſume our voyage. We had not advanced a werſt, before we met two boats coming to our aſſiſtance from Apatchin. We ſent them to the ſuccour of the damaged float, and to ſupply the place of the boats which were unfit for ſervice. As we continued to advance at the head of our embarkations, we at laſt entirely loſt ſight of them; but we met with nothing diſaſtrous till the evening.

133 137 I obſerved that the Bolchaia-reka, in the windings which it continually made, ran nearly in the direction of eaſt-north-eaſt and weſt-ſouth-weſt. Its current is very rapid; it appeared to me to flow at the rate of five knots an hour; in the mean-time the ſtones and the ſhoals which we met with every inſtant, obſtructed our paſ-

ſage

7:Lesseps T-3 (1787-88)1790 Kamchada

133 ſage to ſuch a degree, as to render the la-
137 bour of our conductors truly painful. They avoided them with aſtoniſhing addreſs, but as we approached nearer the mouth of the river, I obſerved with pleaſure that it became wider and more navigable. I was equally ſurpriſed to ſee it divide into I know not how many branches, which united again, after having watered a variety of little iſlands, of which ſome are covered with wood. The trees are every where very ſmall and very buſhy; we met with a conſiderable number growing here and there in the very river itſelf, which increaſe ſtill farther the difficulty of the navigation, and prove the careleſſneſs, I may ſay the ſloth, of theſe people. It never occurs to them to root out theſe trees, and thus open a more eaſy paſſage.

136 Different ſpecies of water-fowl, ſuch as ducks, plovers, goëlands, divers, and others, divert

22: Guillemard T-2 (1882) 1886 Kamchadal

000 Before us lay the peaks of dazzling snow, and it seemed as though all Nature were hushed and worshipping at that throne of spotless purity.

Rest and purity then—the unattainable, in other words—in these lie the charm. The fairest tropic scene holds no deeper meanings such as these. Beauty of form there doubtless is, a far greater beauty perhaps than that of northern climes, but, after all, it is but soulless. The teeming life of a tropic forest, the marvellous wealth of vegetation, the reckless sacrifice of the weakest, produce

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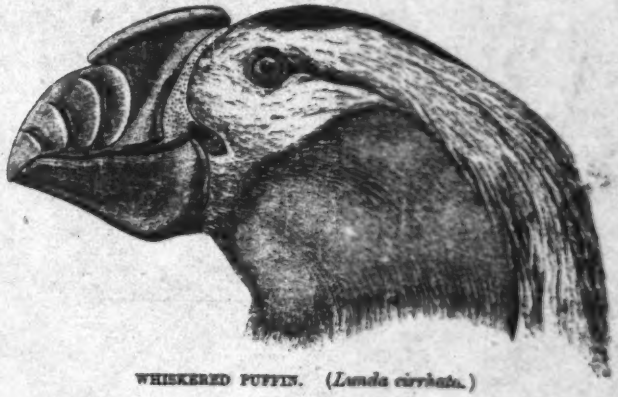

WHISKERED PUFFIN. (*Lunda cirrhata.*)

upon the mind the same effect as do the streets of a crowded city. No grandeur of "calm decay," no pathos of the changing seasons is here. It is a fierce struggle for existence, fatal to any except the most purely material thought.

133 The shores of Avatcha Bay extend to the traveller a more
137 smiling welcome than the iron-bound coast outside. Here, the lower hills slope gently down to beaches dotted with driftwood, or, covered with birch and heather, steeply overhang the sea. Behind they are backed by higher ranges clothed with undergrowth, and rising to the height of fifteen hundred feet or more. To the north-west only is this basin-like appearance broken, where the small

22: Guillemard T-2 (1882) 1886 Kamchadal

133 Paraminka and Avatcha rivers have formed a delta with innumer-
137 able mouths. Low ground also intervenes between the three great volcanoes and the bay, but the height of the mountains annihilates
136 the distance. Hardly a sign of human habitation is to be seen, but the calm surface of the water is broken by quantities of water-fowl, whose nesting-places are the steep rocks at the entrance of the bay. Most noticeable among them are the Whiskered Puffins (*Lunda cirrhata*), and the still quainter-looking Tufted Auks. The little

TUFTED AUK. (*Simorhynchus cristatellus.*)

133 village of Petropaulovsky is invisible, hidden behind a steep promontory forming the western boundary of its harbour. What an admirable harbour it is from a sailor's point of view can best be seen by a glance at the engraving. From the end of this promontory a shoal extends nearly to the other shore, but leaves a channel deep enough for ships of the largest draught. Within this again a sand-spit,—so straight, so narrow, and so regular in form, that it is hard to believe that it does not owe its existence to the hand of man,—runs out from the opposite shore to within a stone's throw
000 of the promontory. We steam in steadily towards the land; to an

22: Guillemard T-2 (1882) 1886 Kamchadal

262 country has any connection or not with the leprosy prevalent
164 among them, it is difficult to say. Our informant described it as
137 being a common disease, and he must have had considerable
241 opportunities of judging, but it is remarkable that during our journey through the country we met with but one solitary case. Scurvy was, we were told, uncommon, owing no doubt to the abundance of the wild garlic and the *sarana*—a liliaceous plant whose bulb is stored for the winter, and supplies the place of the potato. This latter vegetable has, however, become much more extensively cultivated of late years.

115 It was a matter of great regret to us that our acquaintance
758 with Dr. Dybowski should of necessity have been so limited. He
R was on the eve of a long journey in search of fossils to the Kuril
177 Lake, which lies in an almost unknown region at the southern
.75 extremity of the peninsula. It was by such pursuits alone that he was able to mitigate the loneliness of what was, in reality, an exile. During the winter he travelled over the country to such isolated spots of it as are inhabited, and saw his patients. These he was supposed to supply with such medicine as would suffice for their cure, or last them, should they be incurables, until the time of his visit in the following year! It is not every parish doctor whose district is spread over the extent of one hundred thousand square miles!

During the week that was necessary for the completion of our preparations we had abundant time for the exploration of Petropaulovsky and its surroundings. The numerous harbours and lovely scenery of Avatcha Bay would take a month to become thoroughly acquainted with, and it would be hard to imagine a more charming place for the naturalist and sportsman. Possibly, when the salmon rivers of Norway have reached a prohibitory price, and the game of India and South Africa has disappeared, some adventurous individual will recommend Kamschatka as a new field for sportsmen. At present, it must be confessed, it is not very easy to get there. Every year the port is visited by a

22: Guillemard T-2 (1882) 1886 Kamchadal

231 136 *Rien n'est sacré pour un sapeur.* Raw hides, boots, and even babies, it is said, occasionally vary his diet!

To our ship's crew Petropaulovsky appeared little less than a paradise. The bright sunny weather and clear cold nights were a pleasant change after the heat of the tropics, and the forecastle mess was furnished with many unaccustomed delicacies. The 136 harbour and rivers teemed with fish; periwinkles *à discretion* were 137 to be had for the picking, and milk and bilberries were abundant. The whiting and herrings were, however, left in comparative peace, owing to the ease with which salmon were to be obtained at the mouths of the Avatcha and Paraminka rivers. On one occasion no less than three hundred of these fish were obtained at one haul of the seine, and the crew occupied themselves in salting, smoking, 000 and otherwise preserving the spoil. Jack was in his element, and doubtless would not have objected to passing the rest of his life in such a fascinating spot. Our shooting excursions to various parts of the bay were much enjoyed by the boats' crews, and the forward part of the ship began ere long to be ornamented with bearskins that the men had obtained by purchase or barter from the natives. Meanwhile we had been making arrangements with the Ispravnik, and the individual I have before mentioned under the title of the King of Kamschatka, for the ponies that were necessary for the first part of our journey; but, as there was some delay in getting 133 together the requisite number, a party of us started to visit the hot springs of Kluchi,[1] which lie some few miles from the shore on the other side of the bay. Excepting during strong south-easterly winds, which send a somewhat heavy swell into the entrance, the passage across is generally pleasant enough even in small boats. Though blocked with ice in the winter, the bay is, we understood, but rarely frozen right across, although the harbour of Petropaulovsky is, of course, closed for some months. Landing in a bay north-west of the entrance to Tareinska Harbour, we passed through an extensive birch-forest, and emerged at length on the shores of a

[1] Kluchi, I believe, is the Russian word for springs.

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137/133 locomotion as their charges. At this rate of advance our journey's end seemed distant indeed. We pressed on, however, as well as we could, and crossed a small plain from which the base of the Avatchinska group of volcanoes was visible to our right. Their summits were hidden in thick mist, and the weather, which had hitherto been fine, now looked most threatening. Arriving at a small stream, Vodki and his two companions halted, and declaring that there was no water farther on, proceeded to unload the horses. This we soon put a stop to, and telling them that, water or no water, we had no intention whatever of camping for another hour or more, we resumed our journey. The scenery now changed, and we entered a gloomy birch-forest with much thick undergrowth. This was in places six or eight feet, or more, in height, and was composed of coarse grass and giant umbelliferæ, with an occasional blue monkshood, varied in the more open parts with large patches of yellowing bracken. Before long we reached another stream, and were thus enabled to prove the truth of our surmises; but it was not till some time later that we finally halted for the night, the horseboys being by this time scarcely in a condition to proceed farther. We were glad to pitch camp and get a rest, as it had already begun to rain. Before turning in we succeeded in finding Vodki's brandy bottle, but it was perfectly empty. The man had disposed of a pint or more of raw spirit since leaving the settlement!

712 R 177 .71 In this kind of travel movement is not very rapid for the first day or two until every one has shaken down to his work, and on the following morning we were nearly three hours in getting breakfast and striking camp. The horseboys were depressed and inclined to be penitent. If, like an old Kafir servant of mine, they estimated the amount of enjoyment of the previous night by the strength of the morning's headache, they ought, to all appearances, to have been well pleased. We had decided to leave Avatcha on our left, and to make for Stari-ostrog,[1] a small village a little higher up the Avatcha River, and forty versts from Petropaulovsky.

[1] The *ostrogs*, or small forts, were erected by the Russians in bygone days as a protection against the natives at the time of the first settlement of the country. The name now alone remains, all traces of fortification having long since disappeared.

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136 Avatcha River, and forty versts from Petropaulovsky. We passed
137 through the same monotonous forests of birch as before, which, like
487 those of other northern countries, seemed singularly devoid of animal life. An occasional coal tit, which from its note and habits appeared identical with the tame little freebooter of our own gardens, or the tapping of a woodpecker,[1] alone broke the almost death-like stillness which reigned around. We had struck a well-marked trail, and progressed in Indian file, the packhorses (tied in fours, each to the tail of the one in front) leading the way, and relieving the monotony by an occasional breakdown or a stampede.
231 Almost all these ponies are strong and well shaped, but from the ill-treatment they receive at the hands of their masters, have learned to bite, kick, and shy on all occasions, together with other accomplishments of like nature which were somewhat apt to dis-
000 turb our equilibrium. There was but one saddle among us, and the "Kamschatkan Peats," as we named the combination of pillow and pack-saddle which we used as a substitute, though comfortable enough when we ambled along quietly, were apt to become slightly insecure when, as a naval member of our party expressed it, we "made bad weather."

The path between Stari-ostrog and Petropaulovsky appears to be tolerably well-travelled, to judge from the frequency with which we came across the marks of old camping-grounds, but we met with no one on our way. It was afternoon when we reached the river, and crossing a small affluent, found ourselves opposite the village. We had ridden on ahead, and were hailing the natives for canoes in which to cross, when a tremendous clattering in our rear caused us to turn, and we beheld the cook's horse advancing in full stampede, but minus his rider. Beneath his belly a large canteen swung violently from side to side, half-open, and discharging a shower of tin cups, knives, forks, plates, tea and coffee kettles, and other articles of like nature in all directions. We retraced our steps sadly, picking up such articles as we could find, but

[1] *Picus tridactylus*, considered as a distinct species (*P. albidior*) by Dr. Stejneger.

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000 were to pay seven roubles each. The Ispravnik and the King had not done badly; their charge had been exactly quadruple!

226 251 In company with our English-speaking friend we went to inspect the fish. These were drying in open sheds, much as tobacco is dried in the Southern States of America. Split in half as far as the tail, cleaned, washed, and deprived of its head, the salmon is hung across a stick in company with fifty or sixty others. These sticks are then placed a few inches apart, with their ends resting upon other poles which run from end to end of the shed. The fish are thus freely exposed to the air, but protected from the sun. They are not hung lower than about eight feet from the ground, on account of the dogs, who are occasionally seen gazing at them with longing eyes and watering mouths, experiencing the tortures of Tantalus. Excepting for a sledge-dog, however, the sight is not a tempting one. Swarming with countless millions of maggots, which distil in a gentle but unceasing rain upon the ground beneath, whitening it as with a shower of powdery snow, the fish seem to be so rapidly disappearing that one wonders how any remain till winter. Another sense beside that of sight causes the same reflection, but neither the dogs nor their masters are particular as to these little matters. The latter, indeed, prefer their fish in an advanced stage of decomposition, and have the same method of preparing it as I have seen in some parts of Lapland. The salmon are buried for three or four months in pits, and any difficulty in extracting them at the end of that time is overcome by means of a ladle!

133 137 It was late in the afternoon before we were again *en route*, our course lying north-west through the valley of the river. This bears in many places distinct evidence of the latter having been, at some period, of very much larger size. We then ascended the bluff of the old left bank, and rode through an interminable forest of birch-trees, which were here larger than I have ever seen them elsewhere. Many of them must have been at least a hundred feet in height.

000 We began the next day with a more than usually exasperating

[Avacha--Analyst]

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000 stampede. These occurrences, though common enough during the earlier part of our journey, became less and less frequent as we advanced, and before we reached our destination had altogether ceased to trouble us. We did not regret it, for no amount of repetition accustomed us to them, and it needed an almost superhuman patience to take them philosophically. We were now passing along a fairly well-marked trail, and, a short time after we were once more in marching order, we met four miserably ragged and dirty natives who seemed to be moving house. They were mounted, and drove before them a couple of cows. We inquired if they had any furs for sale or barter, but they were unable to understand us, and thinking we wanted milk, produced a few drops of that liquid tied up in a small piece of the intestines of a recently-killed bear. This delicacy, however, we declined with thanks. A little later we came upon the new addition to our cavalcade for which we had arranged at Staroostrog—three ponies, each of which was accompanied by her foal. We formed now a party of some size, composed of eleven men and twenty-six horses, and the playful gambols of the little foals, though somewhat provocative of stampedes, served to counteract the gloom of the monotonous birch-
137 forests through which we passed. The height of the undergrowth of grass and other coarse herbage was enormous; such, indeed, as I could not have conceived possible for annuals to attain in these northern climes. In many places it was two or three feet above our heads as we rode. There was but little game to be looked for, or at least to be easily obtained, among such rank vegetation, and we pressed on without delay, as our rate of progress since leaving Petropaulovsky had been anything but satisfactory.

000 Our new horseboy, though in other ways a great improvement on his fellows, was unluckily a somewhat sleepy individual, and signalised himself during the course of the afternoon by causing the most disastrous stampede we had yet experienced. The pack-horses, as I have already mentioned, were lashed together in strings of four, the leading animal carrying a horseboy in addition to his

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435 price, but this animal does not exist in any numbers in the peninsula. The most valuable skin of all is that of the sea-otter (*Enhydra lutris*), which is becoming rarer year by year. A good pelt of this animal will bring even the native hunter as much as a hundred roubles, while in the European market a perfect one has been known to realise £120!

133 137 On the morning of August 22d we came for the first time to a *tûndra* of considerable size. After the gloom of the birch-forest these vast stretches of level ground have a most exhilarating effect. The feeling of oppressive stillness which but an hour or two before seemed to weigh upon us like a nightmare, disappeared as if by magic, and pushing our horses into an easy canter, we pursued our way with a sense of freedom that is rarely or never felt except by those who ride where fancy leads them over the level surface of an uncultivated plain. The melancholy, the *niedergeschlagenheit* of Kamschatka, of which Kittlitz gives such a long description in his account of the country, I confess I never felt: the converse—a purely physical feeling of delight in mere existence—we often experienced, and a good rollicking drinking song and a loose rein seemed a necessity in order to let off our stock of superabundant spirits. Long wastes of almost orange-coloured grass stretched away nearly to the horizon, only broken here and there by a still pool, or flecked by little tufts of snowy cotton-grass. Our 132 course—for we were on what a native would doubtless call the 487 "high road" to Narchiki—was marked out by long poles, some fifteen or twenty feet in height, which in winter serve to guide the traveller over the dreary wastes of snow. In the forest another method is adopted. The trees are "blazed" by a vertical slit cut in the bark by the hunter's axe. This gapes with the growth of the tree and forms a conspicuous oval mark, ten or twelve feet above the ground—a height which forcibly impresses upon the mind the depth of the winter snow. Other evidences which told us that the warm sun beneath which we were travelling was an affair of days, not weeks, were close at hand, for the snow lay in thick patches

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136 when the first heavy snow falls, at or about the beginning of the month of October. If in poor condition the bear is said not to hybernate till much later. According to the natives, the animals are tolerably fat on emerging from their dens, and support themselves on grass until the arrival of the fish.

133 137 Our road, some time after leaving Narchiki, had led to the west, in order to avoid a range of mountains of no great height which trends in a south-easterly direction from the village of Gunal. We now turned north once more, and entered a beautiful valley. To the east lay the range we had been circumventing, rising to a height of about 4000 feet, its large patches of snow glittering in the bright sun. The outline of these mountains was most picturesque; and, as we advanced, we opened out a group of *aiguilles* so jagged as to resemble a mass of inverted icicles. The valley was scantily clothed with juniper-bushes and dwarf birches, and early autumn had already touched the landscape here and there with patches of bright yellow. As we rode over the ruddy ground, which with its brilliant parti-coloured moss is so characteristic a feature 132 of northern landscapes, we put up several coveys of ptarmigan; 136 and on the outskirts of a small wood we obtained our first 231 Capercailzie, a young bird which, like many other birds of this region, was characterised by the presence of a good deal of white in the plumage. The day was glorious, and so hot that we rode in our shirt-sleeves; our enjoyment only marred by the almost constant stumbling of our horses over the stumps and roots of the trees. The Kamschatkan ponies, which are generally iron-grey in colour, and stand about thirteen hands, are well shaped and have a good barrel, and are capable of a considerable amount of work. Owing, however, to the rough usage to which they are subjected, they are determined kickers, and obstinate to a degree; and it is most difficult to make them lead the way, or, if behind, to prevent them from following in the exact track of those in front. No food is carried for them, and not content with the nightly meal they obtain when picketed, they one and all feed in snatches as they

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CHAPTER VI.

KAMSCHATKA (*continued*).

Abundance of bears—Ptarmigan—The Palæarctic region—Valley of the Bolcheresk—Arrive at the Kamschatka River—Dense growth of annuals—The sable—Methods of catching it—Puschina—Kamschatkan birds—Verglaski fishes the river—Kamschatkan salmon—The Tchervitchi—Krasna—Haiko—Garbusa—Kisutchi—Gultsi—Other salmon—Habits of bears when fishing—We arrive at Sherowmy.

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137 We left Gunal on the morning of August 27th. Our two days' rest had done us all good, and Cook's disabled leg, which had at one time caused us some anxiety, was sufficiently well to risk going on. The injured member had not prevented his superintending the making of some most excellent bilberry jam. We had killed a fatted calf, of which, after much haggling, we had become the possessors for the sum of twelve roubles; and the carcase had been duly converted into veal and a good supply of stock. From our saddles hung several couple of mallard, and the larder on the whole was in as satisfactory a condition as it well could be. We had woke to a heavy mist, which rendered even near objects distinguishable with difficulty, but it lifted gradually under the rays of a bright sun, and before we were well off, and had turned to catch the last glimpse of the beautiful scenery around our late camp, the day had become all that the most *exigeant* of travellers could desire. Under hot suns like these the signs of autumn appear with wonderful rapidity, and we noticed that the tints were distinctly brighter than they had been but three days before.

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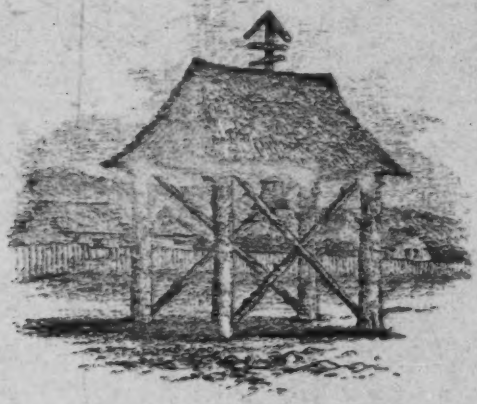
We passed two of the level seas of marshy ground that for lack of a better name I have hitherto called *tundras*. The term is, strictly speaking, applied only to the vast stretches of ground of this nature that are so wearisome to Siberian travellers. Here, however, the only difference lies in the size, and as we have no corresponding English word, I have preferred to retain the Russian name. The thick forests of birch were no longer to be seen, and the country, though still wooded, was more open, large clearings



BELFRY AT GUNAL.

being not infrequent. The familiar monkshood, too, whose spikes of flower are in Kamschatka snowy white, as well as of the ordinary shade of violet that our English gardens exhibit, had almost entirely disappeared, and we saw but little more of it during the rest of our journey. The number of bilberries was enormous, but the cranberry was much less abundant, and its berries as yet were hardly ripe.

Riding quietly along in advance of our party, we suddenly came almost upon the top of two very fine bears, with a young cub between them. We were unfortunately without our rifles at the time, and before we could get them the animals had made off,

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133 greatly to our disgust; and, though we spent some time in following
137 them up, we did not succeed in getting sight of them again. They had doubtless got scent of us, and were far away. Bears are always much more disturbed by getting wind of human beings than by any noise the latter make, or even by their appearance; and the hunter, although his movements are by no means those of the stealthy-footed Malay, knows that unless he works to windward his trouble is in vain. The number of these creatures in Kamschatka must be enormous. Afanasi told us that there are hunters who have killed over four hundred in their lifetime, and we heard that at a little hamlet on the Bolcheresk River more than ninety had been shot and trapped during the summer. July, August, and September are the best months for them, as they haunt the river-banks at that season for the fish, and are in most excellent condition.

The heat at noon was nearly as great as it had been on the previous day, and the business of supplying our larder with ptarmigan for the many mouths we had to feed involved a very considerable amount of exertion; and, as we ploughed through the soft moss, sinking up to our knees at every step, "larding the lean earth as we walked along," it was difficult to realise that at night-
000 fall we should be back again in an Arctic climate. The birds were luckily tolerably abundant, and we had obtained a sufficient number on pitching camp for the night. Capercailzie apparently were rare. We had seen but few, and up to this period had only succeeded in obtaining one, and our game-birds were consequently limited to the Willow Grouse.

The Englishman travelling in Kamschatka who has reached his destination, not by the desert steppes of lonely Siberia, but by way of Ceylon and sweltering Singapore, where almost every bird he sees is unfamiliar to him, cannot fail to be struck, however unobservant he may be, with the resemblance of the avifauna of the new region in which he finds himself to that of his own country. He disturbs a Turnstone or a Golden Plover as he lands, perhaps,

000 having failed, kicked one of the packhorses violently in the belly while unloading it. The effect was excellent. The poor animal, who, like the Pope's mule in Daudet's charming little story, had many an old score to pay off, turned round and bit his aggressor so successfully in the face as to leave him with a portion of his cheek hanging down. Here we interfered to prevent reprisals, and while the conqueror was led off to a patch of the most succulent-looking grass we could find, Vodki retired to his tent to nurse his wound for the next two days.

133 137 Accustomed as we had become during the earlier part of our journey to the wonderfully dense growth of the annual herbage, especially in the birch-forests and in the vicinity of the rivers, I do not think we had ever seen it in more rank luxuriance than we found it here. Our camp was pitched on a little eminence two or three hundred yards from the river, but the latter would have been almost unapproachable had it not been for the numerous bear-tracks that led in every direction through the forest of grass. As it was, the vegetation rose three or four feet above our heads, and was in places so thick that we could never be sure that our next footstep would not precipitate us into one of the hidden streams with which 000 the marshy ground abounded. In such ground shooting is almost impossible, and the only plan is to lie up in concealment on the banks of the river, on the chance of a bear coming out in the neighbourhood to fish.

We spent the remaining two or three hours of daylight in this monotonous and chilling amusement, and rose wet and stiff with cold without any success having attended us. The bears had in all probability deserted this part for some other place where fish were more numerous, and the only recent spoor we saw was that of an otter, an animal that is apparently far from common in the peninsula.

136 The following morning, since there appeared to be no fish in the river, we put our rods together and tried a fly in Kamschatkan waters for the first time. Paradoxical as it may seem, a river of

22: Guillemard T-2 (1882) 1886 Kamchadal

000 resumed our journey down the river. We had hitherto only been able to buy one canoe, and in consequence were in need of four others with which to make our rafts. These they refused to sell us, but offered to lend them, together with men to take us on to Mashura, the nearest settlement, for fifty roubles! The silver rouble being nearly three and sixpence, and the distance only sixty versts—rather less than forty miles—we at once refused, regarding the demand merely as one of the common incidents of barghaining, and expecting it very soon to be considerably reduced. We were rather astonished that there was no sign of anything of the kind, and after waiting some time we had ourselves to return to the charge. In vain we threw the Ispravnik at their heads: we had a discussion of an hour and a half's duration, which at last ended in our agreeing to pay forty roubles, but under protest. At the same time we informed them that we should lay the matter before the Ispravnik on our return to Petropaulovsky.

It was two or three hours after sunrise before we got fairly under way. The weather was gloomy and cold, but with the exception of one heavy shower, we escaped without much rain.
133 Shortly after leaving Melcova the character of the river scenery
137 changes. For the first time on our journey we noticed the pine and spruce, and welcomed them with pleasure, as a relief from the wearisome monotony of poplar, birch, and alder. Here and there curious mud cliffs bank in the stream; often eighty feet or more in height, and nearly perpendicular.[1] The men begged that we would not fire while passing under them, lest a landslip should occur; and apparently with reason, for the soil appears to be constantly crumbling away, and little cascades of dust poured unbrokenly from the face of the banks as we paddled beneath. In one place we noticed a chalybeate spring welling up close to the water's edge, while others of pure water seemed abundant at the base of these earthy cliffs.

[1] These banks of reddish marl, known by the name of *yar*, appear to be not uncommon in Siberia. The town of Krasnojarsk on the Yenisei is thus named from their existence in the vicinity.

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of them were clothed in leather breeches and the boots I have already described, with the ordinary loose blue shirt of the Russian peasant, but some had already commenced to wear the *parka*. These are not all of reindeer, which is not a common animal except among the Koriaks, but are also made of bear and dog fur, although the dogs are not grown for the purpose, as is the case in Lapland.

If leprosy be in any way connected with a diet in which fish is one of the chief constituents, as is by some supposed to be the case, in no country in the world should it be more prevalent than in Kamschatka. Dr. Dybowski had assured me that it was very common, and had shown me photographs in which the expression of the disorder appeared identical with that unfortunately so frequent in Norway. But the only case which came under our notice was at this place, and since the sufferers do not appear to be secluded in any way, it is only fair to conclude that, in the interior of the country at least, the disease cannot be very prevalent. Syphilis is, unhappily, very general, but its effects are now far less terrible than on its first introduction.

We paddled merrily down stream in spite of the still unsettled arguments as to the price we were to pay our men. Below Mashura the pines become more numerous, and the perpendicular mud cliffs are a characteristic feature of the river. Beneath these we found the depth of the stream to be often as much as eighteen or twenty feet, but the mean depth is probably not more than half as great. Huge piles of driftwood block the banks of every low promontory, and testify to the enormous force and volume of the stream upon the breaking up of the ice,—a phenomenon which can dimly be realised from the wonderfully graphic description of Mr. Seebohm in his "Siberia in Asia." Owing to the increased depth of the water, snags became less frequent and navigation easier; but the size of our rafts prevented us from making more than five versts an hour, a rate that our log, frequently heaved and with corrections applied for the current, told us to be fairly constant.

Hitherto we had been able with the greatest ease to shoot as

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000 early dawn, with the thermometer below freezing, struggling in an icy river with all one's furs on, but the unlucky bather was soon ashore, and a sharp rub-down at the camp-fire soon restored both his circulation and his equanimity. The day was once more bright and clear, and the distant peaks looked magnificent in the
133 morning sun. As we drew nearer, the mountains opened out, and the western slopes of Tolbatchinska no longer hiding Kojerevska, the latter volcano appeared, from this point of view at least, as a perfect cone of regular shape, which half concealed the equally regular and still higher peak of Kluchefskaya, the king of the volcanoes of Kamschatka. Other mountains too had come in view. To the north and west of Kluchi,[1] but in close proximity to it, the smoothly-rounded summit of Uskovska rose above the dark line of forest, and far away to the eastward two isolated and nameless cones of graceful shape appeared on the horizon, which, in spite of their eight or nine thousand feet, are recorded in no map.[2]

133 At this part of the river the conspicuous marl cliffs disappear,
137 and the pines are replaced by aspens, a tree of which we had
361 hitherto seen but little. Landing in the afternoon to take photographs and observations, we came upon quantities of the *cherunka* or wild cherry. The fruit is black, and of the size of a large black currant; very sweet, but with a peculiar sloe-like astringent after-taste. The delicious Scandinavian *moltebeer* we did not meet with, but our common raspberry and red currant are in some places plentiful. The latter fruit is, in our English gardens, scarcely worth eating, but in the wild state it is very sweet and palatable.

Eleven hours' steady paddling brought us, at 6 P.M., to three deserted balagans, without fish, and with nothing to indicate the presence of a human being save four canoes hauled high and dry upon the bank. We learnt that Tolbatchik, a village that we

[1] To the natives, with their love of contractions, the great mountain is thus invariably known.

[2] These we have since named Mount Gordon and Mount Herbert Stewart.

000 during our river journey nearly spoilt what was otherwise a very pleasant expedition.

We landed for a meridian altitude, and improvised an artificial horizon by means of a bucket of water. The banks were low and flat, and frequently intersected by muddy creeks, while the birches and firs had almost disappeared, giving place to the willow and
136 wild cherry. I have rarely seen more impassable ground than that
137 close to the river.[1] The coarse grass rose high around us, preventing the possibility of seeing anything—a condition which obtains in almost every part of the country; but an additional and far more effectual barrier to our progress existed in the shape of a thick tough brushwood which clothed the irregular ground with a network of small boughs, catching our feet firmly at every step. Later, at Cape Shipunsky on the south-east coast, we found the country even more impracticable. The bears, however, manage by their great weight to force themselves through this thick cover with little apparent difficulty. Just inside the forest, at a distance of six or eight feet from the river-bank, is a firmly-trodden path some two feet in width, made entirely by these animals; and as these paths are to be found without a break on either side of the river in its whole course through the forest country—a distance of about 500 miles—it will be understood why bears' skins do not command any very high price in the peninsula.

The procuring of a sufficient quantity of duck for our daily needs became at this period a rather difficult matter, the main river being deserted by them for smaller streams and marshy pools in its vicinity. Sea-birds became more numerous; a tern (*Sterna longipennis*), two or three phaleropes, or the Red-throated and Black-throated Divers (*C. septentrionalis* and *C. arcticus*), were to be met with from time to time. We also shot a *Podiceps*, which seemed to be identical with our own Red-necked Grebe.[1] On the banks an

[1] According to Mr. Seebohm, the eastern form of *P. rubricollis* is conspicuous for its larger size, and especially for the greater length and stoutness of the bill; and the measurements of the above-mentioned specimens certainly bore this out.

[the Kamchatka River above Kojerevsky--Analyst]

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000 last rays of the sun and flushed a pale pink, while at the lip of the crater a fleecy puff of smoke hovered for an instant as if in doubt, and then floated out a long thin streamer to the east. Around his shoulders hung a thick belt of cloud, gathering rapidly with the fast-approaching night, and beneath, slope after slope rose steadily up to meet the pyramid above. Kojerevska showed here and there a patch of glistening snow through rifts in the dense veil that hid him from our sight, and on the lake-like surface of the river below our little fleet of boats paddled merrily homewards to the rough and mournful cadences of a Kamschatkan love-song. Suddenly the flame of the first salute shot out from the other raft, the signal for a general fusillade. It was answered by a flash and a report from the village; and a little later we stepped ashore at Kluchi, and were welcomed heartily by the head-man and a little crowd of the inhabitants.

133 / 137 / 361 The morning of September 13th broke with hardly a cloud; and the view of the mountains, which now lay nearly due south of us, was so magnificent that I did not hesitate to devote one of my last plates to it. We crossed the river in a dug-out, and landed on a sand-bank near the opposite side. The stream is here six hundred yards in breadth, and forms a fitting foreground to the picture. Behind the village, whose weather-worn huts line the banks for nearly a quarter of a mile,—for Kluchi may be regarded almost as a city in this part of the world,—the even slopes of ruddy vegetation rise smoothly upwards, till, at the height of two
133 or three thousand feet, the snow is reached. The outline of the mighty volcano was as perfect here as before, and its exquisitely graceful slope as unbroken. Near the summit, on the side immediately facing us, a deep furrow, as yet untouched by the rays of the morning sun, showed the remains of some past eruption—a huge scar which the snows of many winters had done their best to obliterate. From the crater light puffs of smoke drifted slowly away to the east, far whiter than the snow which lay below, for on all sides, and especially near the summit, a sprinkling of ashes had

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133 did not serve in any way to render it less depressing. The village
137 appeared nearly deserted, and as there was nothing to detain us we
—— resumed our journey without loss of time. Before noon we arrived at the Tchoaki (lit. cheeks). These are narrows about seven miles in length where the river passes through a range of hills from two to three thousand feet in height. Both entrance and exit are very sharply defined, and the stream, which above and below is about eight or nine hundred yards broad, is here narrowed to between three and four hundred. The scenery is decidedly picturesque after the monotonous miles of willow-lined banks that weary the traveller's eye in the lower part of the Kamschatka; and we were reminded somewhat of the Iron Gates on the Danube, which geographically—I do not say geologically—the Tchoaki closely resemble. But the former are on a grander scale, and the river here, in spite of its contracted width, exhibits none of the tumultuous rush of water which makes the passage of the Iron Gates so difficult to a Danube steamer.

000 In the Tchoaki we met two or three canoes coming up from Nischni Kamschatka, and learnt from them that a schooner, painted white, and with a steam launch, was lying at Ust Kamschatka—the settlement at the mouth of the river. This was a piece of information which astonished us considerably. That there should be a ship of any kind there other than the *Marchesa* was most improbable, for, as they told us, she was the first vessel that had visited the river for three years. More improbable still was it that she should be a stranger when the fact of her being painted white was taken into consideration; while the existence of a steam launch seemed finally to put the matter beyond a doubt. But on the other hand, the fact that she was said to have arrived many days before was greatly against it, and as the bar was very shallow, it seemed hardly likely that the *Marchesa*, with her draught of fifteen feet, would be able to cross it. The natives could not give us any further information, as they had not seen the vessel, and we were left in a state of doubt which no amount of discussion helped to enlighten.

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132 which, according to Jacof Ivanovitch, were to be found there in
133 abundance. A few years previously he had visited Betchevinskaya Bay, a deep inlet ten miles to the west of the cape, and had shot several; and since, according to his account, both anchorage and shelter were to be had—a not unimportant consideration on such a coast—we again steered southward, and keeping a good offing during the night, ran in to the land and picked up our position off Cape Shipunsky at daybreak. The coast is steep-to, and as we passed close to the fine cliffs and headlands which oppose the by no means tranquil Pacific, there lay the *neiges d'antan* bewailed of Maistre François Villon,—huge patches of last year's snow, choking the gullies down to the water's edge. That they should have remained throughout the hot summer in a south-east aspect was astonishing, and gave some idea of the severity of the climate in these latitudes, but the absence of the usual autumnal rains no doubt in great measure accounted for it.

133 Before reaching our anchorage just within the entrance of the
137 bay, we could distinctly make out small herds of the animals of which we were in search on the slopes of the cliffs, which here rose to a height of five or six hundred feet, precipitous in some places, but in others forming a sort of under-cliff covered with brushwood. We lost no time in settling our plan of action. Judging that the bighorn were confined to the promontory near which we had anchored, we resolved upon surrounding it, sending four guns to the top of the cliff, whose sea-face extended east and west for a distance of about three miles, and posting two others upon the beach below. The former, ascending in rear from the shores of the bay, reached their destinations with some difficulty, the undergrowth being so dense and strong that, but for the bear-paths with which it was cut up in all directions, it would have been impenetrable. At the edge of the cliff progression was somewhat easier, and on looking over we found ourselves in close proximity to the game.
000 Owing to the excitability of Jacof, who had got some distance ahead, we began the day in a manner I hardly like to recall. The

24: Lansdell-636 M-2 (1879) 1882 Kamchadal
116, 132, 137, 241, 286

" The valley watered by the Kamchatka is composed of fine mould, and has abundant natural productions- fir, birch, larch, poplar, willow, cedar, and juniper, and that of larger size than in the same latitude elsewhere in Asia. Raspberries, strawberries, whortleberries, currants, and cranberries abound; and flowers are seen in spring in almost tropical luxuriance. There is much grass in the lower lands, and Mr. Hill records an extraordinary phenomenon in a place he visited respecting the growth and preservation of potatoes.(1) There grows, likewise, a plant in the country called by

1. Admiral Ricord, a former governor of Kamchatka, imported potatoes for seed, and they were planted, but not taken up the following autumn. The next year, being found abundant and good, they were allowed to remain, where , dying and propagating continually, they yielded more than were locally required. Mr. Hill accounts for the phenomenon by the fact that neither damp nor frost could reach the potatoes; for though in winter the snow covers the surface of the frozen ground, yet so great in this vicinity is the internal volcanic heat that the earth is quite dry, and never frozen below a few inches from the surface.

the natives krapeva , from which they make a coarse but very durable cloth. It resembles our stinging -nettle, but is of larger growth and stronger fibre."

24: Lansdell-645-646 M-2 (1879) 1882 Kamchadal
116, 137, 177, 226, 241, 262

" In certain valleys, especially in those of Kamchatka, the grass exceeds the height of a man, and the Russian settlers make hay three times a year. The culture of cereals is of little profit; oats thrive best. Hemp has been grown, but not in sufficient quantities to replace the nettle as a textile thread. In fact, gardening has succeeded better than agriculture, and now the natives cultivate in hundreds of gardens cabbages, potatoes, beetroot, turnips, carrots, and other vegetables introduced by the Russians in the last century. All these, however, added to their other kinds of food, barely give sustenance enough to the Kamchatdales and their dogs, without which it would be almost impossible for them to leave their huts at certain times of the year. During the four months of summer they must lay up dry fish to provide for eight months of winter, and the normal amount of winter food for a pack of half-a-dozen Kamchatdale dogs is 100,000 herrings. Besides [646] this the owner's family must be nourished, and hence, if a bad season comes, and the fishing or hunting fails, death is certain; for to the greater part of the natives who have no deer, winter and want are synonymous terms."

27: Sauer--285-287 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 137, 787

"On the 11th August [CMC: 1792] in the harbour of St. Peter and St. Paul, I observed a number of swallows flying about, apparently much [286] frightened. They were red breasted, a species never remembered to have been seen here; and the inhabitants immediately predicted some remarkable event; they were, however, only seen during the morning. The next morning, about five o'clock, we were alarmed by a violent shock of an earthquake, preceded by a rumbling noise, little short of thunder. The motion of the earth was undulatory for nearly the space of a minute. I was dressing myself, and was thrown down, which induced me to get out of the house as quickly as possible. The water in the bay was agitated like a boiling cauldron. The shock came from the north-east, and appeared to me to continue upwards of two minutes; but other gentlemen were of opinion that it did not last more than one. A sailor, one of the watchmen on board the ship, was thrown out of his hammock. At Paratounca it was more violent; the earth opened in many places, and water and sand were thrown up to a considerable height; all the buildings in the village were more or less damaged; one balagan was thrown down; some of the ovens (the only brick-work about the buildings) were also shaken in; and all the paintings, &c. in the church, except Captain Clerke's escutcheon, were thrown from their fastenings.

At Neizishni Kamtshatka the inhabitants were extremely terrified; nor could they explain whether the noise or the shock preceded. The situation of the town is on a neck of land formed by the discharge of the Raduga, a considerable river, into the Kamtshatka;

the bed of the former was dry, and the inhabitants ran across it toward the mountains. They, as well as the cattle, were thrown down; and the continuance of the trembling was, according to their account, near an hour; the earth opened in many places, and sunk considerably in some. The volcano Klut-[287]shefskoi emitted a vast column of black smoke; a noise like thunder seemed to issue from the bowels of the earth; the bells of the two churches rang violently; and the howling of the dogs, and screams of the people, surpassed all description, for the latter expected every moment to see the complete destruction of the town. But when the shock was over, the lost water of the river resumed its former channel, and the inhabitants returned to their dwellings. Not a single brick chimney or oven was left standing. The altar of one of the churches was separated from it about a foot, inclining a contrary way; and the greater part of the balagans were thrown down.

It is remarkable, that the inhabitants of the village at the foot of the burning mountain only heard the noise, and did not feel the shock; nor did it cross the mountains to the western shores of the peninsula."

27: Sauer--289-290 T-2 (1789-93) 1802 Kamchadal
116, 133, 137

"I shall commence my description at the southern extremity [CMC: of the Kamchatka Peninsula], which the Russians call the Lopatka, latitude 51°, longitude 156° 40', east from Greenwich; a low point of land, widening and rising gradually into mountains, barren and rocky, only producing here and there the creeping cedar and willow, to the extent of 40 miles. Birch trees then appear in the inconsiderable vallies, which are replete with lakes and runs of water rushing into the sea both east and west. A cluster of mountains occupy the whole space from the Lopatka to latitude 53° 5', where, in the neighbourhood of the village Malka, they divide into two branches, one trending north north-west; the other, which may be called the principal chain, leads north north-east. The place where the mountains separate is the highest land on the peninsula, and forms a barren stony desert of 65 miles in length, in a direction north and south, and from 3 to 15 in width, producing in detached spots brush-wood, willows, and a very few scattered and stunted birch-trees. It is replete with springs and [290] brooks; some of which uniting, and flowing south and south-west, form the Bistrea; while others, at only a few fathoms distance, take an opposite course, and are the sources of the river Kamtshatka. At the end of this desert, the mountains close within a mile or two, and a forest of birch-trees follows to the village Apoushinsk, where the river Kamtshatka is navigable for small boats to its discharge."

27: Sauer--290-291 T-2 (1789-93) 1802 Kamchadal
116, 132, 133, 137, 824

"The productions of nature [CMC: in central Kamchatka] are, a small kind of wild black cherry (tsheromka), in great abundance; the wood of which, being particularly hard, is used by the Kamtshadals for their guiding sticks to the sledges: the thickest trees that I have seen are nine or ten inches in circumference. Firs, common pine and larch trees of extraordinary size, with birch, poplar, asp, and mountain-ash, clothe the mountains to their summit. The underwoods are, currant, dog-rose, hawthorn, alder, and bushes producing berries.

The climate is very different from that of the southern and northern parts of the peninsula, the valley being completely sheltered from the sea-breezes that chill the air in other parts, and prove a great check to vegetation, which commences here in the month of March. The scenery is beautiful beyond description, [291] the river meandering through the midst of the valley, from 50 to 250 yards wide, and from eight to 15 feet deep, and being replete with trout and every species of salmon in the season. This valley is 180 miles in length, frequently opening prospects of the Tolbatshinsk, a lofty double-headed mountain, constantly emitting an immense column of black smoke; while the second volcano, Klutshefskoi, towering to an incredible height, illuminates the clouds with its blaze, and affords a view awfully grand."

27: Sauer--292 T-2 (1789-93) 1802 Kamchadal
116, 133, 137, 361, 563

"At Tolbalshinsk [CMC: mountain] the mountains are broken and barren; they encroach upon the valley, and considerably lessen its width. Storms are frequent between this volcano and that of Klutshefskoi, but never reach the neighbourhood of Milhovoi, and the trees are considerably less in size; but the country continues fertile as far as 30 versts north of the village Klutshefskoi, which is also a colony of Siberian peasants for the same purpose as those at Milkovoi, and who act in the same manner [CMC: see category 563, this source, p. 291]. Their proceedings are in some respects justifiable; for the magistracy at Neizshni exact the same payment from them as from the residentiary merchants. The court of justice conflicts of a burgo-master, four members, or rathmen, a secretary, writers, and watchmen; receiving a salary for the time they are in service: and frequently an expensive deputation is sent to Tigil, Bolshoiretsk, Virchni, and such places as are reported to by these pedlars; so that it is a matter of doubt with me, whether the culture of the earth would render any harvest sufficient to answer the payment of their claims. In some years they amount to 18 or 20 rubles, and in others half as much more."

27: Sauer--293 [2] T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 137

"The western coast of Kamtshatka is uniformly low and sandy, to the distance of about 25 to 30 miles inland, where the mountains commence. It produces only willow, alder, and mountain-ash, with some scattered patches of stunted birch-trees. The runs of water into the sea from the mountains, do not deserve the name of rivers (except the Bolshoia Reka), though they are all well stocked with fish from the sea in season, as trout and different species of salmon. They are generally at the distance of 15 to 20 miles from each other. The Itsha and Tigil are the most considerable; and neither of these have a course, with all the windings, of more than 100 miles.

The sea is shallow to a considerable distance; and the commanders of the transport vessels, who never lose sight of the exposed coast if they can help it, judge of their distance from land, in foggy weather, by the soundings, allowing a fathom for a mile; nor is there at the entrance into any of the rivers more than six feet at low water, with a considerable surf breaking on the sandy beach."

27: Sauer--296-297 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 137, 361, 563 Russia
636.71

"The little harbour of St. Peter and St. Paul is to the north [CMC: in Avacha Bay]; its south bluff cape is extremely conspicuous; and the buildings upon the spit of land before it are clearly discernible. This harbour is in every respect convenient for giving ships all kinds of repair, as also for obtaining fire-wood and fresh water. If all its good qualities are considered, I think it may be pronounced the most convenient in the world. Six or eight ships of war might be conveniently moored in it head and stern: the only inconvenience (if it may be so called) lies in the amazing toughness of the ground; for if the anchor be heavy, and out any time, it will probably be found necessary to heave a strain on the ship to weigh it. The south of the harbour is bounded by a narrow neck of low land running out from the eastern shore in a western direction, covered with wooden houses and balagans; at the extremity of which is the entrance, 38 fathoms wide, and six and a half deep: ships may pass so close to this point of land, that a man may leap on shore. The west side is a projecting narrow mountain of moderate height trending to the south, terminating in a bluff head, upon which it a battery of three guns, and a flag. [297] From this extremity a shoal extends south about 100 fathoms. The north, which is the head of the harbour, is bounded by a valley, in which are the government magazines, barracks, and the dwelling houses of the commander and chief inhabitants. To the east, it is bounded by lofty mountains covered with wood to the very summit; namely birch, mountain-ash, hawthorn, dwarf-cedar, rose-bushes, &c. On this side

are several springs of very pellucid water rushing down the mountains into the harbour, and these are very convenient watering places.

The bay is bounded to the north-west by the extensive plains of Avatsha, where two rivers discharge themselves into it; namely, the Avatsha and Paratounca. At the estuary of the former, the Kamtshadals, who formerly resided in the harbour, have their present habitations; while the troops of the garrison possess their late dwellings."

27: Sauer--298 T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 137, 161

"Near the mouth of this harbour [CMC: of Tareinsk in Avacha Bay], on its north-west borders, is a valley forming a plain of about one mile and a half square, well wooded with good sized birch trees: a situation which Major Behm thought the most eligible of any hereabouts for a town. North and south are lofty mountains of easy ascent, covered with trees to their summit. The valley is bounded to the west by a fresh water lake of about 15 miles in circumference, well stocked with fish all the year through; while its borders abound in different kinds of berries, sarana, tsheromtsha (a kind of wild garlick), and a variety of pot herbs. This lake is the chief source of the river generally known by the name of the Paratounca, of which I shall shortly give an account, as also of the other rivers. The remains of numerous villages in the vicinity of this lake strongly indicate the former popolousness of these parts; but they are at present overrun with bears, wolves, and hares."

27: Sauer--300-301 T-2 (1789-93) 1802 Kamchadal
116, 133, 136, 137

"The plains of Avatsha, which bound the bay to the north-west, extend 18 miles from east to west, and 35 miles from north to south, producing at their northern extremity only a few patches of birch, poplar, and alders; all the rest are marshy grounds, overgrown with rushes and coarse high grass, with some spots of oziers and alders; the resort of myriads of water fowl, swans, geese, an amazing variety of the duck kind, and I believe every species of snipe. The river Avatsha runs in several branches through this plain. Towards its northern extremity are an immense number of cold springs, that form several basins of water, with small runs, uniting in a rivulet, which has a course towards the south of two miles, and empties inself into the river generally known by the name of the Paratounca, but which is called by the natives Ilmitsh; and the original Paratounca is the run from the springs above mentioned, opposite to the discharge of which the village of that name is situated. These springs do not [301] freeze in winter, during which season they are frequented by swans, geese, and several species of duck, particularly the safka, or duck with a melodious note, which has induced me to stile it musical. Here they find an abundance of food, and the pulpy root of an aquatic plant which, in its appearance, exactly resembles the olive, but is like the chesnut in flavour: I used it as a vegetable, and thought it better than any production of the gardens: the natives call it the sarana of the geese."

27: Sauer--303-304 T-2 (1789-93) 1802 Kamchadal-1-2
116, 133, 134, 137, 782, 821

"Hot springs are very numerous, and seem scattered all over Kamtshatka; but those in the following places are the most remarkable:

Opalski, or Osernoi, situated nearly midway between the Lopatka and Bolshoiretsk, about 15 miles south of the Kamtshadal village of Yavinsk, surrounded by mountains, and at no great distance from the volcano of Opalsk. They occupy a valley of considerable extent, and are scattered to the distance of six miles, some parts of which produce detached birch trees, the sweet plant, &c.; but in general the soil is barren, composed of different coloured marl, and large stones which appear to have been scattered by eruptions of some volcano. The largest hot spring is at the foot of one of the mountains; and we heard the noise that it made at the distance of near a mile before we came to it. It is about six fathom in circumference, boiling up to a considerable height; the middle appears like a cauldron; and a piece of beef placed in it was very well boiled in a short time: all around it bubbles up between large stones; it then divides into two streams, which descend over stones, and unite at the bottom with a small rivulet formed by the other springs to the north: they flow a little way to the south, then turn westward into the lake Osernoi. About the border of these springs, and the rivulet which they form, we observed petrified, or rather calcarised, foliage of the sweet plant, birch leaves, sticks, &c. of a beautiful whiteness; but so extremely delicate in their texture, that we could not preserve any, even in cotton; for they mouldered to dust. The Kamtshadals suppose this to be the habitation of some demon, and make a

trifling offering to appease his wrath; without which, they say, he sends very dangerous storms. Our naturalist and Mr. Varonin, who ascended to these springs in 1790, experienced [304] a whirlwind, which tore their tent, and scattered its contents about, many of which were never found again. Ashes were scattered upon the snow about four inches deep, resembling coarse gunpowder, probably from the volcano Alaid (a solitary mountain in the sea, situated about 20 miles south-west of the Lopatka), which burns violently at this time(February 1793). It has at various intervals emitted smoke ever since 1790. The oldest inhabitant does not remember its having done so before, although tradition informs them of its violent eruptions."

29:Cochrane T-2(1821-22)1824 Kamchadal

563 tatoes, cabbages, turnips and radishes; but the two
137 former never arrive at complete maturity, the one being waxy, and the other without a head. The famous antiscorbutic cheremsha, or wild garlick, abounds, as does a small but delicious root, somewhat resembling a sweet potatoe, called, in the language of the country, kimtchiga. There is also an abundance of wild berries in the neighbourhood of Tygil, yet their chief support is fish and rein-deer, of both which I partook at the hospitable table of
000 the commander of the fortress. At the expiration of four days I departed, having remained so long to recover my feet, which had been severely frost-bitten from wet.

I was accompanied by the commander of the transport lying in the Haven: he was what is termed a good, though a droll, fellow; and I was
133 gratified with his society. Our route lay at first
361 up the Tygil, which from its source to near the town runs through an interesting country. At midnight we reached Sedanka, a small village, containing six dwellings. From thence to Bolcheretzk is called the Tygil coast, which, generally speaking, is low and flat, the sea-coast being from thirty to forty miles from the mountains. The villages through which I had come were all of them upon the banks of some small streams, which, in most cases, rise in the mountains; but sometimes they emanate from the lakes, which are numerous. The rivers I do not apprehend to be

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133 more than the melting of snow and rain which de-
231 scend from the eternally snow-clad peaks. The quantity of horned cattle upon the coast is so small as not to merit notice, although the pastures are extensive and fertile enough to feed millions.

563 At Sedanka we procured dogs to enable us to cross the mountains to the next station, a distance of one hundred miles. Early in the morning we passed the camp of the Koriaks, and continued our route along the Sedanka river for forty miles, when we reached the Rasoshna. We encamped for the night in the snow, the dogs round us, and then the fire; we passed on the whole, a pleasant night, although my feet were still in a bad state, owing probably to their late want of pedestrian exercise.

133 The following day we crossed numerous elevated
137 lakes, and then over mountains and a well wooded country. On our way we fell in with a caravan of eleven nartes from the town of Cliutchi bound to

133 Tygil. We continued until we reached an elevated
132 desert of ten miles long, which we crossed in a continual storm of wind and snow, called in this country *purga*; we halted in a miserable place, having come about thirty miles. I can hardly imagine how the poor dogs found their way, or how they managed to drag us along. There are times when these *purgas* are so tremendous that mountains of snow are levelled, immense valleys filled, whirlpools formed of snow, not only stopping the further progress of the traveller, but absolutely burying him

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132 and his dogs: nothing can exceed the devastation,
133 or be compared to it, but the effects of the wind on sandy deserts or mountains. I have known instances of people detained for twenty and thirty days in this tremendous pass, and it is seldom that it is crossed without a gale. And yet all this difficulty and danger might be obviated simply by the erection of crosses or mounts, as in the northern parts of Siberia, where I have seen in the distance of thirty or forty miles, a small mound of earth, with a white and black chequered cross placed at every one hundred and fifty yards.

133 The night was exceedingly cold, and the snow
137 and wind prevented our even enjoying the luxury of a cup of tea, for no fire could be lighted. Crossing a second toundra, desert, of seven miles wide, with infinite labour to the dogs as well as ourselves, we entered upon a most magnificent country. Lofty, straight, and stout firs lined the right of the valley, while the dwarfish larch, and alder, mixed with birch, stood upon the left in all their bandied and
000 crooked shapes. The contrast was extremely pleasing as we glided along the milky valleys at a rapid rate. Immediately upon clearing the desert the snow and wind ceased, and we hailed the return of fine cold weather. Not long after we overtook a caravan of nartes in great distress, having been detained ten days in the mountains by the weather. The dogs had been without food for three days, and were evidently in the last stage. In the early

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000 sent holder, who, though I feel assured he appreciates it highly, yet would not retain it, should relations, or others more nearly concerned, express a desire to be possessed of so valuable a memorial.

133 From Kharchina the route lies over a large lake,
137 and thence over a fine open country, abounding
361 with some of the finest fir-trees I have ever seen, reaching to the height of sixty and eighty feet. At twenty miles we reached the ostrog of Kamennoy, on the right bank of the Kamtchatka, and, changing dogs, proceeded twelve miles farther to Kama-
136 kie over numerous lakes near the river. The coun-
361 try here abounds with red foxes, and is certainly one of the most picturesque parts of the Peninsula: the beautiful view of the Sopka, or Peak of Cliuchie, was hid in the clouds. I movedon to wards Nishney Kamtchatsk, also an antient capital in the Peninsula, a far more eligible place than the pre-
000 sent site. The weather had now become very mild, no less than 3° of heat of Reaumur. We made good about seven miles of our journey through very deep snow by the ensuing morning. For three hours we did not move forward more than one mile, a heavy fall of snow had taken place, and it was found impossible to proceed, owing to the extraordinary heat of the weather. No track nor scent offered to the dogs, otherwise I would have persisted in the prosecution of my journey. The drivers, however, with snow shoes actually sunk eighteen inches deep in the snow, and I was therefore com-

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000 pelled to return. We soon regained the ostrog we had left, and there we passed the night, witnessing such a scene of riot and drunkenness as is quite beyond my pen to describe. My companion had parted with a few bottles of spirits unadulterated, which, when they had operated, induced him again to launch out adulterated spirits, receiving, of course, a sable for each bottle. I was thoroughly convinced from this circumstance that Kamtchatka should not be supplied with spirits.

361 I was mortified at not visiting the town of
161 Nishney Kamtchatsk, and its port, but may say
137 that the former contains twenty-two dwellings, and one hundred and fifty inhabitants, and the latter an accessible port, but much feared for want of being frequented. Formerly, when the seat of government was held there, vessels annually went to St. Peter and St. Paul's for provisions, but this is now no longer the case. Timber abounds in such quantities and of such a quality as should induce the government to fell and to export it to the present capital, where it is much wanted. I reached Cliuchie at midnight, having come over a few lakes
133 and a half frozen river. Cliuchie is a Russian pea-
361 sants' village, containing one hundred and eighty
563 inhabitants. It is pleasantly situated upon the right bank of the Kamtchatka, at the foot of the eastern termination of the lofty peak which is not far from it. This peak is said to be the most elevated in the peninsula, being about fifteen thousand

137 enough to bear the nartes. I crossed two other small rivers by bridges for that reason. The scenery was very beautiful, a lofty range of mountains lay to the east with a good deal of fine timber, while the flat country is one fine uninterrupted meadow,
361 without a single cow to feed upon it. Stchappinat
161 has seven dwellings and fifty-two inhabitants, and,
136 it is said, the finest fish in the peninsula, though but
226 few are actually procured from it: they are considered so delicious that the inhabitants send them to the seat of government as presents to the chief and officers. The causes of their comparative scarcity are probably the depth and rapidity of the river, as well as the smallness of the nets; for unless the river be actually swarming with fish, it is seldom that the inhabitants can provide themselves with a sufficient supply.

137 To Massura are forty miles of a well wooded
361 country, and fine meadows upon the banks of the
161 river. I almost flew the distance, being scarcely
234 six hours in performing it. There are ten dwellings and sixty people, civil and hospitable to a proverb; a considerable quantity of cattle are in the neighbourhood, feeding on a rich pasture which runs to Kirgannick twenty-five miles further, where I got sight of the magnificent mountain scenery over hanging Verchney Kamtchatsk. One Sopka
361 (Peak) is especially remarkable. Milkova, a
563 Russian peasant village, ten miles distant contains fifteen houses and one hundred and twenty inhabit-

CHAPTER XI.

General Observations on the Peninsula of Kamtchatka.

000 KAMTCHATKA is a large peninsula of an elliptical figure, extending from the latitude of 59° to 51° N; the breadth is inconsiderable. A magnificent chain of mountains, with numerous sopkas or peaks, extend from north to south, the whole length of the peninsula, from which mountains numerous rivers, large and small, find their way into the ocean. Of these the Kamtchatka is the only navigable one, admitting vessels of one hundred tons as far as one hundred and fifty miles up the stream. All the rivers are, however, crowded with fish of superior flavour. There are also lakes of considerable size, and so numerous, that all intercourse between the several parts of the Peninsula is, during spring, summer and autumn, effectually precluded.

132 The productions of the country are few but va-
137 luable. There is an abundance of wood, as fit for ship-building as for general use. The finest timber is found on the banks of the Kamtchatka, Yelofka, and eastern coast, but the climate is such as to induce me to believe that neither corn nor vegetables will ever attain to great perfection; the soil in all seasons, at the depth of twenty-four to thirty inches, being frozen. Potatoes never ripen, cab-

29:Cochrane T-2 (1821-22) 1824 Kamchadal

132 bages never come to a head, and peas only flower;
137 but turnips and radishes thrive amazingly. Grass of the most nutritious quality is found in the greatest abundance, as well in the numerous meadows as in the forests. It grows to the height of between five and six feet, and in some places three crops are produced within the year.

132 Winter may be said to occupy near one half of the year, spring and summer the other half. The winters are mild when compared to those of Siberia; the thermometer never descending, in the southern parts of the Peninsula, below 20° of Reaumur, and seldom below 12° and 15°. Spring is the most agreeable time, just when the leaves put forth, and it is then the fishing commences. The summer is the most disagreeable portion of the year, owing to the heavy rains and heavier fogs which come from the eternally snow-clad mountains. The greatest heat is in July, when the thermometer is at 27° and 28°. The snow lying upon the ground seven and eight months will sufficiently account for the want of cultivation, but indeed the remaining four can hardly be considered as equal to more than two months in other places; for the sun at St. Peter and St. Paul's has no effect upon the earth during more than four hours of the day, and from the immense height of the mountains, it is only from ten o'clock until two that any heat is felt.

151 This absence of heat, and these changes of climate, with the very heavy fogs, which account for

29:Cochrane.T-2(1821-22)1824 Kamchadal

251 263 439 the sterility of the soil, operate also to prevent the inhabitants from laying in a sufficient store of winter provisions, which as they consist of fish are exposed to the air to dry, and in a short time become so rotten and maggotty, that but a small quantity can be made serviceable for the consumption of the people; the rest is retained for the dogs. Salt is at present issued, but not in sufficient quantities; were that article more liberally distributed, the people might in some years prepare fish to last them several successive ones. From the quantity now supplied by the king of the Sandwich islands, it is to be hoped that the first productive season will be taken advantage of.

137 262 439 Of wild vegetables, some of which are mixed with the bark of trees for the fare of the inhabitants, there is an abundance in Kamtchatka, and there is no doubt that greens, turnips, and radishes might with a little trouble be every where produced. Wild berries and wild garlick abound; the latter is exported to Okotsk and Yakutsk: this plant is one of the finest antiscorbutics known, but has a peculiarly offensive smell.

136 The principal riches of Kamtchatka may be said to consist in the animals of the chase, of which there are so prodigious a number, that there are not sufficient inhabitants to take them. The most valuable are foxes of various colours, a few sea and more river otters, with an immense number of sables. Bears, wolves, rein-deer and mountain-

29:Cochrane T-2 (1821-22) 1824 Kamchadal

I never could relish their flesh. The Kamtchatdales also derive great benefit from the whales which are numerous, and which being encountered by the Kasatka, for the sake of the tongue, as is supposed, are killed and cast ashore. Upon the whole, therefore, there are no people at whose disposition Providence has placed more of the necessaries of life, than the inhabitants of Kamtchatka. For their direct subsistence, they have fish, flesh, and fowl, wild berries and roots in great variety and abundance, sufficient doubtless to maintain a large population; while for clothing, they have immense quantities of furs of the warmest and most durable kind; and for firing and building, wood is every where to be had in the utmost profusion.

Such being the case, it becomes a matter of speculation, what could induce the aborigines to live in that filthy and famished condition which formerly characterized them. Was it from an over abundant population, or the want of means to possess themselves of food—such as guns, nets and traps? That they had means to entrap game and fish for a certain proportion of the inhabitants there can be no doubt, but whether sufficient for a large population is very questionable.

Of the people in general, I can only say they are as amiable and honest as ever. They are now established in villages all built in the old Russian style, which are clean and comfortable. During the summer or fishing season, they leave their winter resi-